ICPR

TRANSLATION OF INDIAN PHILOSOPHICAL CLASSICS

General Editor
Sibajiban Bhattacharyya

Gadādhara's Theory of Objectivity

Viṣayatāvāda

PART ONE

SIBAJIBAN BHATTACHARYYA

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CONTAINING THE TEXT OF

GADĀDHARA'S *Viṣayatāvāda*

WITH AN ENGLISH TRANSLATION,

EXPLANATORY NOTES AND

A GENERAL INTRODUCTION

SIBAJIBAN BHATTACHARYYA

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PREFACE

This work contains an English translation of *Viṣayatāvāda* of Gadādhara Bhaṭṭācāryya, the last great Navya-Nyāya philosopher who flourished in the late seventeenth century. His style, being fully developed, is complicated, using the latest technique of Navya-Nyāya. Because of the very complicated conceptual structure of Navya-Nyāya thinking, no work of Gadādhara has so far been translated in any Indian or European language. There is, however, a long tradition of translation of Navya-Nyāya texts, in English, French, German—the languages which I read—and perhaps in other European languages. Saileswar Sen, Daniel H.H. Ingalls, Kuppuswami Shastri, Bimal Krishna Matilal, J.N. Monanty, Goekoop, Karl Potter and others in English; A. Foucher and Kamaleswar Bhattacharyya in French; Erich Frauwallner and his school in German have developed a technical language[1] in which Navya-Nyāya texts can be translated. Although this technical language of translation is not intelligible to general readers without adequate understanding of the Navya-Nyāya concepts, still with explanations and introductory essays explaining the Navya-Nyāya concepts and techniques of expressions, a sort of intelligibility might be achieved. It is this hope which has prompted me to undertake the present translation, although with what success it is for scholars to judge.

In translating and explaining the text I have derived the greatest help from Pandit Madhusūdana Nyāyācārya whose sudden death on August 26, 1985, deprived me of help in the final stages of writing this book. My general understanding of Navya-Nyāya concepts, as expressed in the *Part One* of this book, is due entirely to him, although he is in no way responsible for my errors. Pandit Viśvabandhu Tarkatīrtha was kind enough to explain a number of pages of difficult text with his characteristic insight and clarity. I only hope that I have been able to

1. For details see Karl H. Potter, *Encyclopedia of Indian Philosophies*, Vol. I, Motilal Banarsidass, Delhi, 1980.

incorporate his explanations fully and correctly; without his help the work would have been far worse than it is.

My thanks are due to Professor Heramba Nath Chatterjee, formerly Principal, Government Sanskrit College, Calcutta, who provided me with all facilities for consulting books and manuscripts in the College Library, for editing the text. I have followed the text of *Viṣayatāvāda* edited by Dhundirāja Śāstrī (Chowkhamba, 1940), (cited by me as A); correcting it by the following two manuscripts in the Government Sanskrit College Library:

Subject Nyāya

(1) Cat No. 388, script Bengali, incomplete, 10 pages (cited as B).
(2) Cat No. 2625, script Bengali, incomplete, 8 pages (cited as C).

The text incorporated in *Vāda-Vāridhi* edited by Dhundirāja (Chowkhamba, 1933) is exactly the same as A. Two other earlier editions (6617 and 6619 in Karl H. Potter's *Encyclopedia*, Vol. I, 1983) were not available to me.

I must thank the Indian Council of Philosophical Research, New Delhi, for full financial support for preparation of the manuscript.

Calcutta University SIBAJIBAN BHATTACHARYYA
September, 1985

PART ONE

General Introduction to Navya-Nyāya Concepts

CHAPTER 1

THE NAVYA-NYĀYA THEORY OF RELATION

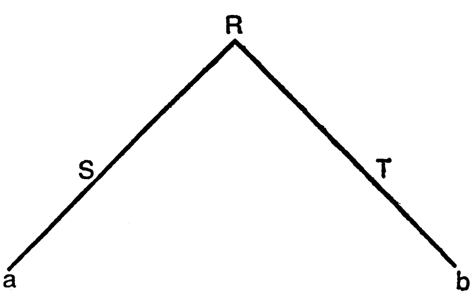
I. INTRODUCTION

The concept of relation is unclear for various sorts of reasons, involving as it does difficulties of various types, ontological, logical, epistemological. We shall explain here the Navya-Nyāya concept of relation with reference to only some of the difficulties involved in this concept.

A major difficulty in understanding what a relation is stems from the fact that a relation, in order to relate its two terms to each other, must, and also cannot, relate itself to its terms. Let us examine the reasons for this contradiction.

(i) A relation must itself be related to its terms in order to relate the two terms with each other. For example, if we have a relation, R, between two terms, *a* and *b*, (*a*R*b*) then if R is not related to *a* and *b* by some other relation then R becomes wholly unrelated to *a* and *b*. If R, being wholly unrelated to *a* and *b*, can still relate *a* and *b* to each other then R can easily relate *any two* other objects, say *c* and *d*, to each other, for R is unrelated to *c* and *d* in the same way as it is to *a* and *b*. Thus in order to prevent the possibility of any relation relating any two terms, *a* and *b*, R must be related to *a* and *b* by some relation or the other in order to relate them.

(ii) R cannot be related to *a* and *b* by any further relation, for, this leads to an infinite regress of relations between *a* and *b*, thus:



Being faced with this paradox philosophers have suggested various ways out. We shall discuss here some solutions offered by Western philosophers before explaining the Navya-Nyāya theory.

II. INFINITE REGRESS IN RELATION

We shall attempt here (1) to distinguish between the different forms of the infinite regress which the concept of relation may be said to involve, (2) to discuss some of the solutions which have been proposed, and (3) to offer our own solution.

1. *Different Forms of the Infinite Regress*

Form A

This is the familiar form of the regress, and stems from the demand that a relation is to be related to its terms by *another* relation and so on ad infinitum. So we have here an infinite number of *different* relations. We may distinguish between three different forms of this form of infinite regress. (i) Suppose *a* and *b* are to be related (in that order) by the dyadic relation R^2_1. Now if we hold that R^2_1 has to be related to *a* by another relation which must therefore be dyadic, say R^2_2, and to *b* by another dyadic relation, say R^2_3, and so on, then we have an infinite number of only dyadic relations—R^1_2, R^2_2, R^2_3 ......(ii) But it is not necessary to hold that R^2_1 should be related to each of its terms separately by different relations, for we can hold that R^2_1 should be related to both *a* and *b* by one relation which has therefore to be triadic, say R^3_1, and so on ad infinitum. In this form we have an infinite number of relations—R^2_1, R^3_1, R^4_1, ..., each relation having one term more than its predecessor. The infinite regress of form (i) may be regarded as simpler than this, for (i) involves only dyadic relations. (iii) We can also have an infinite regress of a mixed type involving an infinite number of dyadic relations and an infinite number of relations involving more and more terms. This is possible if at one and the same step when we have got three or more terms to be related to a relation, we allow the introduction of one or more dyadic relations to relate the relation pairwise to

some terms and of one or more polyadic relations to relate it to the remaining terms.

All the three sub-forms of Form A seem to follow from the same fundamental difficulty, although (i) has a special feature which we will study below.

FORM B

This form of the regress is fundamentally different, because it involves an indefinite repetition of *one and the same* relation. This form of the regress can be shown to be involved in the modern concept of relation as the class of ordered n-tuples. To say, for example, that *a* is related to *b* by R_1^2 is merely to say that the ordered pair (*a*, *b*) is a member of R_1^2. The difficulty now is that *being a member of* (membership) is itself regarded as a relation. To state that *a* is related to *b* by R_1^2 is to state the relation of the ordered pair (*a*, *b*) to R_1^2 Hence the infinite regress becomes inevitable thus:

(i) aR_1^2b

(ii) $(a, b) \in R_1^2$

(iii) $((a, b), R_1^2), \in \in$

(iv) $(((a, b), R_1^2), \in) \in \in$

(v) $((((a, b), R_1^2), \in), \in) \in \in$

and so on ad infinitum.

We first note two points about the infinite regress which this form makes clear. (a) The infinite regress in Form B shows that the regress is possible even if ontologically there be only one relation, i.e. the infinite regress does not presuppose the reality of an infinite number of different relations. This is because relations are conceived here as ordered n-tuples, and it is the peculiarity of an ordered set that if a member is repeated it changes into another set. Thus the ordered pair (*a*, *b*) is different from the ordered triple (*a*, *b*, *b*) and so on. This explains why (iv)

above is different from (v) and all other subsequent steps. (b) The infinite regress arises even in an *extensional* theory of relations; i.e. the infinite regress cannot be avoided simply by refusing to conceive relations as *connections* between (among) its terms.

2. *Solutions of the Regress*

We first discuss some solutions of the regress of Form B.

(a) G.B. Keene has argued, (on other grounds), that membership should not be regarded as a relation but as a 'quasi-relation'.[1] If $\in$ is not a relation then we cannot expand (ii) into (iii) by the definition of 'relation'. As a matter of fact Keene seems to imply that expressions like (iii) are not 'harmless' (p.75). Now, if we accept this distinction between relations and quasi-relations, the infinite regress is stopped at (ii).

The difficulty of this solution is this that it recommends a radical departure from the usually accepted set theories. (iii) is not regarded as in any way undesirable in the ordinary forms of set theory. Quine, for example, introduces membership as a relation defining it as the class of all ordered pairs of members and sets of which they are members.[2] (He of course distinguishes between the undefined primitive binary predicate '$\in$' in lower case and '$\in$' in capital to denote the defined relation of membership. But this does not affect the point under discussion.)

(b) The theory of types offers a way out of the infinite regress. The restriction imposed on the formation of a set, although justified on other grounds, for example, avoidance of paradoxes, *also* solves the problem of infinite regress. If we accept this theory, then we cannot have a set which is a member of itself, or a member of a member of itself and so on; the expression '$x \in y$' is well-formed if and only if y belongs to a type immediately higher than the type of x. The infinite regress is stopped because the expression (iv) is not well-formed, for '$\in$' occurs on the left hand side of the membership relation and also on the right hand side. This becomes evident if we reduce the left hand side, which

[1] 'Relations and quasi-relations' *Analysis*, Vol. 24. (Supplement No. 2), pp. 73ff.

[2] *Set Theory and Its Logic*, pp. 155ff.

is an ordered set, to an unordered set by the Wiener-Kuratowski method thus:

(iv W-K) $\{\{((a, b), R_1^2\}, \{((a, b), R_1^2), \in\}\} \in \in$

This shows that $\in$ is a member of a set which is a member of a member of $\in$, which is not permissible. Hence the infinite regress is stopped.

But this solution, too, is not satisfactory. For the theory of types in some forms (where transfinite types are allowed) generates an infinite series which will be, in this case, an infinite regress. For if (iv) really violates the rule of types, then there is also the standard solution. Instead of having a *general* relation of membership, we can have an infinite number of relations of membership, membership of the first type or order, $\in_1$, of the second type or order, $\in_2$, and so on. This will avoid offending the rule of types thus:

(iii T) $((a, b), R_1^2 \in_2, \in_1$
(iv T) $(((a, b), R_1^2), \in_1) \in_3 \in_2$

. . . .

and so on ad infinitum. Thus we have the infinite regress again.

(c) Those who accept von Neumann's distinction between a set and a (proper) class have another way of stopping this form of the infinite regress. For they can hold that like the class of all sets, $\in$ is also not a set but a class. This will prevent (iv) from being well-formed, so it and the successive expansions will not be possible.

This seems to be the most satisfactory solution, for in this way the infinite regress is stopped and no new regress is generated.[3] Let us now note some features of this solution.

[3]This has been communicated to me by Dr. G.T. Kneebone of Bedford College, London. He has, however, pointed out that even von Neumann's theory can generate an infinite regress *if we assume* a stratified universe or a system of nested universes U_i, in which the proper classes of 'U_i' are all sets of U_{i+1}. But such a regress is due to the ontological assumption of nested universes of this nature. This assumption is not necessitated by von Neumann's theory, whereas the theory of types itself involves a hierarchy of entities of different orders or types.

All relations become *terms* of the relation of membership. If 'aR_1^2b' is an abbreviation of '$(a, b) \in R_1^2$', then R itself becomes a term of this fundamental relation of membership. Thus every relation including membership itself is a term, yet the infinite regress is stopped.

We may digress here to compare and contrast this solution with the theories of Wittgenstein and Bergmann as presented by Sellars:

> WITTGENSTEIN: There are many nexüs in the world. Simple relations of matters of fact are nexüs, All objects or individuals which form a nexüs are particulars, i.e. individuals of type O. There is no relation of nexüs or exemplification in the world.
>
> BERGMANN: There is only nexüs, exemplification. Every atomic state of affairs contains at least one...individual which is not a particular.[4]

Against both Wittgenstein and Bergmann this theory may be taken to assert that all relations are terms, hence there is no nexüs. But this theory is nearer Bergmann's in this that it explains all relations in terms of one relation of membership and membership seems to be the extensional analogue of predication or exemplification. The difference between this theory and Bergmann's is that according to Bergmann there is one nexüs; exemplification, which cannot be a term of any relation and cannot be named. But according to von Neumann's theory the expression '$((a, b), R_1^2) \in \in$' is well-formed and hence even '$\in$' becomes *a* term (i.e. the second term) of itself. Now it is usually thought that the infinite regress is generated by treating relations as terms, i.e. as denoted by words. Russell, for example, has once asserted:

> A great deal of the confusion about relation which has prevailed in practically all philosophies comes from the fact that relations are indicated not by relations, but by words which are as substantial as other words.[5]

[4]Wilfrid Sellars, 'Naming and Saying' in *Essays on Wittgenstein's Tractatus*, edited by Copi and Beard, p. 255.

[5]*An Outline of Philosophy*, p. 275, quoted by Copi, *ibid.*, pp. 179-80.

But this remark of Russell seems to be falsified by the fact that although membership is denoted by the word '$\in$' and is also a term, still the infinite regress is *not* generated. The reason for this is as follows. von Neumann's distinction between a set and a class does not prevent $\in$ from being a *term* of itself, it prevents it from being a *member* of any class or types. This allows the possibility of $\in$'s being the second term, although never the first term, of the relation of membership. Still this restriction prevents the infinite regress. For the regress in relations *conceived as sets or classes of ordered n-tuples*, originates only in the transference of the second term of the membership relation to a position in the first term; and if this transference is disallowed at *any* stage, the infinite regress is prevented. This solution of the infinite regress is possible only because the concept of relation has been made precise to a great extent. In the absence of such precision of the concept of relation it is not clear how the infinite regress is generated or how it can be prevented.

Now we come to the solution of the regress of Form A. The regress in this form is avoided by denying that relations can be related. Thus Russell writes "Bradley conceives a relation as something just as substantial as its terms, and not radically different in kind".[6] So what is necessary to avoid the infinite regress is to hold that relations are 'radically different' from substances. Now this radical difference consists in just the fact that relations do not need to (cannot?) be related to their terms. This denial therefore seems to be as arbitrary as von Neumann's stipulation that classes cannot be members. But while von Neumann's stipulation resolves *other* difficulties also—the paradoxes of set theory— and has been formulated for solving them, Russell's stipulation here has the sole aim of avoiding the infinite regress in relations.

But if this stipulation is sufficient to avoid the infinite regress, it is not clear why the *other* stipulation by Wittgenstein and Russell should be necessary—namely, that a relation cannot be 'indicated by words', but had to be 'indicated by relation'. Russell's only reason for avoiding the use of words to indicate

[6]*Ibid.*, p. 263, quoted by Copi, *ibid.*, p. 180.

relations is the fear that such use may 'mislead' us 'unconsciously' to regard relations as substantial. But if we consciously and explicitly deny that relations are entities needing to be related to their terms, then what harm is there if we denote relations by words? Wittgenstein seems to hold in the *Tractatus* that only objects can be named,[7] but if this theory of naming stems only from his fear that the use of words to name relations would, ipso facto, generate the infinite regress, then the theory is not necessary. For we can hold that naming has nothing to do with the question whether that which is named needs to be related or not. Moreover, the *mere* stipulation that relations cannot be named cannot solve or even avoid the infinite regress, it can only prevent *statement* of the regress. Copi in recommending Wittgenstein's solution of the infinite regress says, "Wittgenstein's recommended 'logical symbolism' would appear to provide a threefold answer to Bradley's argument against relations. First, as already explained, its adoption would prevent even the first step of Bradley's regress. Second, because it contains no relation words, its adoption would eliminate the circumstance that 'relations are indicated not by relations but by words' which Russell held to be 'at the bottom of the hopeless muddle' which has prevailed in *all* schools of philosophy as to the nature of relations. Third, Bradley's argument against the reality of relations could not even be formulated 'in the language recommended' one of Wittgenstein's avowed aims was to avoid errors by employing " 'a symbolism which excludes them' ".[8] Of these three points the first two can be achieved even by using relation-words if it is denied that *all* words are equally 'substantial'; only the third cannot be achieved, but it does not seem to be necessary for the solution of the regress, unless we share 'Wittgenstein's aim'.[9]

[7]But it is not clear what these objects are. Eric Stenius, for example, holds that according to Wittgenstein even properties and relations are objects (cf. *Wittgenstein's Tractatus*).

[8]*Ibid.*, p. 180.

[9]For discussion of this point, see Philip F. Hallie, 'Wittgenestein's exclusion of metaphysical nonsense', *The Philosophical Quarterly*, Vol. 16, No. 63, pp. 97ff.

An obvious difficulty of this solution of Wittgenstein is that there cannot be any higher order logic involving quantification over relational variables. Quine, however, suggested a way out by using 'class' and 'relation' to denote only 'virtual classes'[10] or 'virtual relations'. The class-variables and relation-variables are used to denote *as if* there were classes and relations in the ontology. But these words or terms are really eliminable by definition and hence do not really denote any relation or class. This is merely a notational device to use relation-variables without any commitment to relations in ontology.

Quine's solution based on the notion of 'virtual class', however, is open to the charge of 'having the cake and eating it too'. If Wittgenstein is right in saying that the use of a relational wordturns the relation into a term, it is not clear how even in the merely notational device of Quine, 'aRb' can be a sentence without involving infinite regress although of only virtual relations.

A different type of solution is more often advanced. It is asserted that the infinite regress can be stopped not by holding that relations do not need to be related at all, but by holding that relations need not be related by *anything else* to their terms. This solution of the regress postulates that relations are at once both relations and *terms of themselves*. Thus Eric Toms writes:

> Similarly Bradley's regress can be brought to a close by a relation which is in a similar sense 'reflexive' . . . Thus it would seem that, in order for two things to be actually related by a so-called two term relation, this apparently two-term relation would have to be an aspect of a more complex relationship involving at least three terms. If the regress stopped there, the third term of the relationship would not only be a term but *a reflexive relation*; not only would it relate the original two terms, but it would also relate *itself* to them considered as a pair, thus being a term as well as a relation.[11]

Now let us examine this solution. It seems to have the consequence that relations are not ontologically 'radically' different

[10]Quine, *Set Theory and Its Logic*, Harvard University Press, 1963.
[11]*Being, Negation and Logic*, p. 55.

from the terms; for they are at once *both* terms and relations—a theory which seems to be repugnant to Russell, Wittgenstein and Bergmann alike. This of course is not something which makes this solution unacceptable. As we have already seen the set-theoretical interpretation of relation also tolerates expressions of the form '$a \in \in$ where $\in$ is both a term and a relation. But this similarity between the set-theoretical and the present solution also shows the inadequacy of the latter. For the infinite regress could not be prevented in the case of $\in$ by the mere assertion that it is at once a term and a relation; an additional restriction that $\in$ cannot be a member was necessary. So also here the mere fact that R_1^2 is both a term and a relation cannot prevent the regress unless some other stipulation or stipulations are made. This can be explained as follows. Toms says that if *a* is to be related to *b* by R_1^2, (aR_1^2 b), then this R_1^2 again has to be related to the pair (*a*, *b*); but it is not necessary to have another relation, say S, to do it, for R_1^2 itself will be this relation also. That is, instead of saying 'R_1^2 S (a, b,)' we will say 'R_1^2 R_1^2 (*a*, *b*,)' where the first occurrence of 'R_1^2, denotes R_1^2 as a term and the second occurrence denotes R_1^2 as a relation. But it is not at all clear how the further regress is stopped now. The problem is that to relate *a* to *b* R_1^2 has to be related to (*a*, *b*,), and it is not solved by merely holding that R_1^2 is related to (*a*, *b*) by itself. For it is not obvious that the question of relating anything to itself cannot arise. Ordinarily there are various ways in which a thing can be related to itself—as a matter of fact, by any relation which is reflexive in the usual sense. So to stop further regress we have to deny that anything can be related to itself, or that *any relation* can be related to itself. The stronger assertion that there can be no relation between a thing and itself has indeed been made by many who have found the concept of reflexive relation wholly unintelligible. But our point here is that it is some such restriction, and *not merely* the concept of self-relating relations that is necessary to stop the infinite regress.

3. *Summary and Conclusion*

We conclude by noticing how exactly the different solutions discussed above stop the infinite regress. By analysing the argument for the regress we may distinguish the following steps :

(1) Relations are 'indicated by' relation-words.
(2) Relations are conceived as terms.
(3) Relations (so conceived) need further relations in order to relate them to their terms.
(4) This process cannot stop.
(5) Hence the infinite regress.

Step (1) may be regarded as a premise of the argument. But there may be difference of opinion about the nature of Step (2). If what Russell has said is correct, we cannot infer Step (2) from Step (1). It is a matter of fact that Step (1) tends to lead to Step (2). On this theory Step (2) becomes another premise (i.e. independent of Step (1)). But it may also be argued that if relations are indicated by words, then this implies that relations have been conceived as terms, i.e. Step (1) logically implies Step (2). There are still others who hold that it is Step (2) which logically implies Step (1), so this should suffice as the sole premise of the argument. Steps (3) and (4) are regarded as inevitable consequences of Step (2). That is, if once we conceive relations as terms, then we cannot avoid the need for further relations and so on ad infinitum.

Now we see that the different solutions of the regress discussed above stop the regress by rejecting different steps of the argument. Thus Russell and Wittgenstein solve the problem by recommending a denial of Steps (1) and (2). Toms denies Step (3) by introducing the concept of a relation which is also a term of itself. The solution based on von Neumann's theory stops the regress by denying Step (4). Russell and Wittgenstein seem to grant the validity of the argument, and hence can avoid the regress only by rejecting the premises. The other solutions deny the validity of the argument, they accept the premises (1) and (2), but deny Steps (3) or (4). Now all these solutions may seem to be arbitrary, for the argument for the regress seems to have a sort of obviousness about it; hence to deny any of the steps, premises or intermediate conclusions, may seem to be arbitrary. But the solution based on von Neumann's theory seems to be the least dogmatic because the restriction which solves the regress is introduced for *other* purposes, while the other solutions introduce new concepts solely for the purpose of avoiding the regress.

But there is something more to it. As we have already seen, there are two opposite considerations:

(A) The possibility that any (dyadic) relation relate *any two* terms has to be, obviously, avoided.
(B) To achieve this purpose it is felt to be necessary and sufficient to demand that a relation in order to relate its terms must itself be related to them.

But now we show that (B), instead of achieving (A), really makes its achievement impossible.

Suppose that aRb; now (B) demands that there be two relations, S and T, such that

(a) RSa and RTb,

which is equivalent to

(b) $a\breve{S}R.\ RTb$

which, again, is equivalent to

(c) $a\ \breve{S}/T\ b$

where R has completely disappeared as a relation between *a* and *b*.

Thus to demand that R be related to *a* and *b* by S and T, in order to have aRb, is self-defeating, for this demand leads to

(d) —aRb

for R cannot be regarded as S/T, because R functions in (b) *just as* a term,

(e) (Ez) (aSz . zTb).

More generally, we have,

(f) (R) (x) (y) [(ES) (ET) [{xSR.RTy} }⊃ – xRy]]

Thus we see that it is (2) which is a consequence of (3) and not the other way round as Russell would have it. If relations are conceived as demanding to be related then relations are conceived as terms, *and* cease to be relations. Von Neumann's solution of the infinite regress is not a solution of this problem.

III. SOME FEATURES OF THE NAVYA-NYĀYA THEORY OF RELATION

1. *Terminology*

A relation is conceived as dyadic in Navya-Nyāya. The two terms of the relation are called the *anuyogin* and the *pratiyogin* of the relation. For example, in

(a) Daśaratha is the father of Rāma

Daśaratha is the *anuyogin* and Rāma the *pratiyogin* of the relation *being the father of*. So also in

(b) A jar is the object of the cognition of a jar

a jar is the *anuyogin* and its cognition is the *pratiyogin* of the relation *being the object of*. Thus it appears that the *anuyogin* of a relation is its first term or predecessor, and the *pratiyogin* its second term or successor.

But there is some difficulty in thus identifying *anuyogin* with the predecessor and the *pratiyogin* with the successor of a relation. It is because the *direction* of the relation, say, *being the father of* is not *from* Daśaratha *to* Rāma but the other way round, *from* Rāma *to* Daśaratha. It is usual in Navya-Nyāya to say that the relation, *being the father of*, is *of* Rāma *in* Daśaratha. So if *anuyogin* is identified with the predecessor and the *pratiyogin* with the successor of a relation, we shall have to say that the sense or the direction of the relation is from the successor to the predecessor. In Navya-Nyāya terminology the relation is *of* the *pratiyogin in the anuyogin*.[12]

This seems to go against the common usage of Western logic. Tarski, for example, states explicitly that 'the thing *x* has the relation R to the thing *y*' is abbreviated in symbols as 'xRy'. Now 'Daśaratha is the father of Rāma' will be symbolised in this way as 'dFr'. According to Tarski this will mean that d (Daśaratha) has the relation F (*being the father of*) to r (Rāma). But

[12]Professor J. M. Bochenski informed me in an oral discussion in 1973 that in Latin the expression 'relation of A in B' was used in mediaeval philosophy (as is done in Navya-Nyāya), instead of 'relation of A to B'.

according to Navya-Nyāya this will be the converse of the relation F; F is the relation which Rāma has *to* (*in*) Daśaratha.

FUNCTION

Although a function is a relation of a special kind, still in symbolising a function Tarski uses symbols in a way opposite to the common practice. It is usual to regard the value of the independent variable as belonging to the domain of the function, and the value of the function as belonging to the counterdomain, the sense of the function being from the domain to the counterdomain. Hence it would be proper to say that the function is of *y* to *x* when we have *fyx*. But this will reverse the order of the terms (expressions) as they occur in the English sentence 'y is the father of x', where given the value of 'x', the value of 'y' is determined by the function, *being the father of.* To keep the order of the terms (expressions) as they occur in the sentence the same in symbols, we have to have 'fxy' which will necessarily reverse their order in the symbolisation. Tarski has used the opposite method of symbolising functions. Instead of the usual 'fxy', he writes 'fyx', for avoiding the conflict in the order of terms as they occur in the English sentence and in its symbolised form. But then, Tarski has to go against the usual conception of a sense of a relation as from the predecessor to the successor. Tarski has to say the opposite: 'the successors with respect to the relation R, that is, those things *y* for which there are actually things *x* such that

$$xRy$$

are the argument values, the predecessors are the function values, or simply, the values of the function R.'[13]

This difference in usages or customs in symbolising relation-sentences, specially function-sentences, among Western logicians, creates difficulties in identifying the Navya-Nyāya terms, *anuyogin* and *pratiyogin* with the terms of a relation in Western logic. To avoid any confusion of the sense or direction of a relation we shall *describe* the relation as the relation *of* the *pratiyogin* to (in) the *anuyogin* instead of using the relation-sentence or its

[13]Tarski, *Introduction to Logic*, pp. 98-99.

symbolisation. In diagrams, however, we shall write the *anuyogin* as the predecessor and the *pratiyogin* as the successor, i.e. in the same order as they occur in the sentence, although the *direction* of the relation will be *from* the successor *to* the predecessor, as in Tarski's symbolisation of functions, thus:

$$a \xleftarrow{\quad R \quad} b$$

2. *Nature and Ontological Status of Relations*

A relation is often defined as the object of a qualified cognition which is different from its qualificandum and qualifier. A qualified cognition is the cognition of something *as* something. Thus we may cognise this thing as a jar, i.e. as jar-ness-possessing. This cognition of a jar is expressed in language by the single word '(a) jar'. A qualified cognition has as its object a structure with three elements :

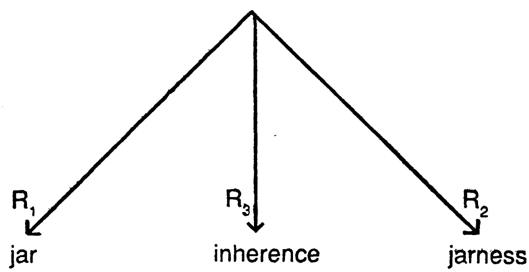
(i) a qualificandum which is that which is cognized, the jar in the present example;
(ii) a qualifier which is very often identified with the mode under which the qualificandum is cognized; jar-ness is the qualifier in this example;
(iii) the qualification which is the relation between the qualificandum and the qualifier; in this example the relation of jar-ness to the jar, i.e. the relation of inherence.

As all these three elements constitute the relational complex which is the object of the qualified cognition, a relation is defined as that object of a qualified cognition which is different from the qualificandum and the qualifier of that cognition.

This way of defining a relation in terms of objecthood of a qualified cognition makes the Navya-Nyāya concept very different from the usual Western concept. Firstly, it is the cognition which has to be cognised as a qualified cognition before one can get the idea of a relation. Secondly, a relation relating two terms forms only a qualified or compound object, but not a fact. This means that a relational expression does not form a sentence from two names in the sense of the Western philosophy; it only forms a

complex term. This is because a relational cognition, i.e. a cognition of a relation, is a cognition of something *as* something, something-qualified-by-something, something-related-to-something. Thus when we cognise what is really a jar *as* a jar, we have the cognition of a jar as jar-ness-possessing where 'possessing' stands for the relation of inherence. Thus this structure of this relational cognition is as follows:

Cognition of a jar as jar-ness-possessing



As is evident in this diagram a single qualified cognition is related to three elements in the objective structure by three different relations. These different relations which a cognition has to the three objective elements are cognised directly in introspective awareness of the cognition. Thus in introspection of a cognition the three characteristic relations which it has to the three elements in the object become evident; and it is only on the basis of this introspective awareness that a relation is defined as that element in the object to which its cognition is related by R_3. Thus anything to which a cognition has the relation R_3 is a relation.

This theory has a very important consequence for the ontological status of relations in Navya-Nyāya. A relation as defined here is relative to a cognition. According to Navya-Nyāya there is no separate category of reals which are relations. What is cognised as a relation may or may not be a relation ontologically. So far as the ontological status of relations is concerned, Navya-Nyāya classifies relations into three altogether different kinds.

(a) The first kind of relation is just one relation—inherence,

which is ontologically a separate reality. Thus although Navya-Nyāya admits one particular relation, inherence, as an ontological category, still it does not admit other relations, in general, as forming a separate ontological category.

The postulation of one relation in the ontology is often used to solve the problem of infinite regress of relations. For eventually the regress is stopped when this relation is reached. This relation is usually regarded as not requiring any further relation to relate it to its terms, for it is ontologically of the nature of relation and hence is radically different from other elements in the ontology. But Navya-Nyāya does not use inherence in this way to stop the infinite regress of relations. The method of Navya-Nyāya is very different because, for one thing, when inherence itself is denoted by the word 'inherence', it becomes an object like all other objects in the ontology. According to Navya-Nyāya whatever is denoted by a word is the qualificandum in the cognition which the hearer has on hearing the word. Thus inherence as denoted by the word 'inherence' is the qualificandum of a cognition of inherence and the cognition is, therefore, related to inherence by R_1 instead of by R_3 which is the proper relation of the cognition to a relation in the objective structure.

One consequence of this theory of word-meaning is that a relation cannot function as a relation if it is denoted by a word. As every qualificative cognition is also necessarily a cognition of a relation, the cognition cannot involve a word denoting the relation. As Navya-Nyāya accepts the principle:

(P) Everything is related by some relation or the other to everything,

even relations like inherence can be promoted to terms by simply being named by a word. A relation functioning as a relation, not as a term, in a qualified cognition has, therefore, to be indicated by word order in the sentence expressing the cognition but never to be denoted by any word.

(b) Thus Navya-Nyāya does not have any difficulty in holding the view that anything belonging to any category of reals can

function as a relation in a qualified cognition. In the qualified cognition

jar-possessing is the ground

we have the ground as the qualificandum of the cognition, jar as the qualifier and contact as the relation indicated by 'possessing' which makes contact a term. Thus it is impossible to express in language a cognition that contact is the relation between the jar and the ground.

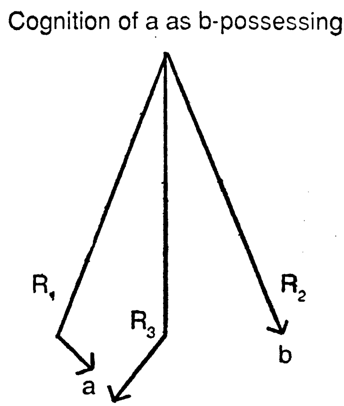
How is it that we can talk about cognitions involving all sorts of relations between the qualificandum and the qualifier ?

Navya-Nyāya has developed a technical language in which it is possible to state what relations have been cognised in cognitions. This is necessary because in ordinary language there is no way of expressing relations in language. This technical language of Navya-Nyāya is not a metalanguage in the sense of a language about a language. In the technical language of Navya-Nyāya we denote relations by relation words, still *these* relations being thus denoted in the technical language do not get promoted to terms in ordinary language. Thus in order to express the cognition under discussion Navya-Nyāya *describes* it as the cognition with the ground as its qualificandum, the jar as its qualifier and contact as the relation between them. In the technical language of Navya-Nyāya the cognition is described as having its qualifier-ness limited by jar-ness and the relation of contact, determining the qualificandum-ness resident in the ground and limited by ground-ness. To say that the qualifier-ness is limited by contact is to say that the contact is related to the cognition by R_3. If contact is, as a matter of fact, cognised as the relation in the cognition, then the cognition, as a matter of fact, is related to it by R_3. To say this is not to promote contact to a term, which we shall do if we say in the ordinary language 'the ground is in contact with the jar', for there is no way of determining whether this is a description of the earlier cognition or of a new cognition. To be put in the technical language using 'limitor', 'limiting relation', etc. is to emphasise beyond any doubt that it is a description of the earlier cognition. Any reality of any category can function as a relation and also as a term within the same context. Thus a self-linking term is not a reality of a peculiar type. For every reality can and

does function as a relation also, it all depends upon the nature of the other term of relation. Thus any reality as a locus of any absence will function also as the relation of the absence to it. So also anything which is produced will be related by itself to the time of its occurrence. Anything occupying space will be related to the space by itself. Thus a self-linking term does not belong to any particular category of reals.

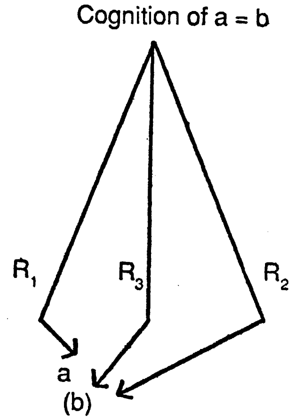
(*c*) *Self-Linking Relation*

Navya-Nyāya makes extensive use of the concept of self-linking relations. A qualified cognition is defined as a cognition of relation between the qualificandum and the qualifier. Yet it may so happen that in the ontology corresponding to the relation cognised there is no separate reality at all. The question then arises: how can the relation be cognised when there is no relation in reality? The answer is to be found in the Navya-Nyāya theory, already explained, that what is cognised as a relation depends upon the relation of the cognition to what is cognised. Thus it may so happen that one and the same real entity is related to its cognition by two relations, say, R_1 and R_3. This real entity will therefore be both the qualificandum and also the relation of the cognition. This may be represented by the following diagram:



In this diagram *a* being related to the cognition by both R_1 and R_3 becomes the qualificandum as well as the relation of the cognition. In the extreme case of identity there is only one real entity

which functions in three different capacities in the cognition, thus:



where in the ontology there is only one element, say, *a* or *b* which is related to itself by the relation of identity. Thus the qualificandum and the qualifier of this cognition must be the same ontological reality if the cognition is to be true. What is special in Navya-Nyāya is that even the relation of identity is ontologically the same as this reality. Thus there is only one reality which is cognised as the qualificandum, the qualifier and also the relation between them.

In the literature the Navya-Nyāya term *svarūpa sambandha* has been translated as self-relating or self-linking relation. This translation is misleading because what the term *svarūpa sambandha* means is that ontologically a reality which is a term of the relation is also the relation itself. This is, of course, the consequence that the term relates itself by itself to the other term. So it will be more proper to translate *svarūpa sambandha* as a self-relating term; rather than a self-relating relation.

In such a case an entity functions in cognition both as a term and also as a relation by being related to its cognition by two characteristic relations. But according to Navya-Nyāya the entity which functions as its own relation must be cognised under a specific mode for this purpose. For example, when a jar is cognised, it becomes the object of this cognition. Now to be an object of this cognition is to be related to it by a specific relation. Some Navya-Nyāya philosophers hold that this relation of the cogni-

tion to its object is not ontologically a separate reality, but is identical with the object itself. This relation is called objecthood. Thus the jar is the object of the cognition which is also the relation to it. Te be a relation objecthood has to be cognised under the mode of the higher order abstract objecthood-ness. Objecthood under the mode of objecthood-ness becomes the relation between the object and the cognition.

Such a relation is denoted by an abstract formed from a relative term. Thus from 'father' we get the relation fatherhood, from 'son' we get sonhood, from 'object' we get objecthood as the relation of cognition to object. But fatherhood is ontologically the same as the person who is the father, still the same person when cognised as the relation fatherhood, is cognised under the higher order abstract fatherhood-ness; so also sonhood will be the relation only under the mode sonhood-ness, objecthood under the mode of objecthood-ness and so on. "*Svarūpa-sambandha-viśeṣatvam kḷptapadārthaḥ san kiñciddharmoparāgeṇa saṃsargatāvattvam; yathā pratiyogitvādau pratiyogitvasya pratiyogisvarūpatayā kḷpta-padārthatvāt pratiyogitātvena saṃsargatvāt.*"[14]

To be a *svarūpa sambandha* is to be:

(i) an already accepted ontological reality,
(ii) under the mode of some property.

As in the case of *pratiyogitva* (counterpositiveness), *pratiyogitva* is the same as the *pratiyogin* ontologically and hence is a real entity already admitted in the ontology; it is a self-relating term only under the mode of *pratiyogitātva* (counterpositiveness-ness).

(d) *The Determiner and the Determined*

The terms related by a relation R are correlatives *of* each other by R. Navya-Nyāya expresses this relation between two correlatives by the relation of determination. If *a R b*, then, the predecessorness resident in *a*, determines (or is determined by), the successorness resident in *b*. Thus substratum-ness resident in one object determines the superstratum-ness resident in another object if and only if the second object is *in* the first object. In *Daśaratha is the father of Rāma*, the fatherhood resident in Daśaratha is determined by the sonhood resident in Rāma and vice versa.

[14]*Avachhedakatvaniruktiḥ*, ed. Śivadatta Miśra, pp. 1-2.

This theory has an important consequence in the case of the relation between a cognition and its object. In a qualified cognition the object cognised has a relational structure, say, *a R b*; where *a* is the qualificandum of the cognition and *b* is the qualifier. But then *a* is the qualificandum and *b* is the qualifier of the cognition only because they are qualificandum and qualifier in relation to each other. Thus being objects of a cognition they have become correlatives to each other by the relation R. In this case also the qualificandum-ness resident in *a* determines (or is determined by) the qualifier-ness resident in *b*. But the most important point to be noted here is the function of R in this cognition. We shall explain the Navya-Nyāya theory by comparing and contrasting the theory once propounded by Russell.

"Judging is a multiple relation which (i) requires as it constituents a judging mind (*subject*) and the elements of the proposition judged (*objects*); (ii) arranges them in a certain *order*. The whole judgment is a complex unity, the terms being severally united by the relation of judging.

The judgment is true if there exists a complex unity corresponding to it—in the sense that what are the objects in the judgment complex exist as a unity on their own (and in the same order) outside the judgment complex."[15]

This theory is said to involve the following difficulties.

Now if we make this proposition the object of a judgment, where M is the subject or judging mind, and j is the relation of judging, we have two complexes :

(a) the judgment complex M j A r B;

(b) the fact complex A r B."

Considering our two complexes (a) and (b), and looking for the differences between them, we find the following :

(i) In(a) there are four terms (M, A, r, B), and one relation(j). In (b) there are two terms (A and B) and one relation (r);

(ii) In (a) r is a term; in (b) it is a relation;

(iii) In (a) the order of A, r, and B is determined by j; in (b) the order of A, r, and B is determined by r.

Now how, it is asked, can the theory possibly claim, in the light of those differences, that there is a correspondence

[15]A. D. Woozley, *Theory of Knowledge*, pp. 124-25.

between the two complexes? More particularly, how can it claim a correspondence between A r B as part of the judgment complex and A r B as the whole of the fact complex? Russell does not explain what he means by 'correspondence' but he appears to mean that a true judgment corresponds to fact when the only difference between the judgment complex and the fact complex is the presence of the judging mind M in the one and its absence from the other. But if that is what he means, he is certainly wrong, because although the difference is covered by (i) above, differences (ii) and (iii) still remain. The real difficulty is that r performs a different function in each of the two complexes, being a term in one and a relation in the other; and it has consequently been argued that however the relation j may unite the elements in the judgment complex the fact remains, as Russell admits, that it is j which does it, not r, and that it is j which relates A to r and r to B. If that is so, r in the judgment is not performing its function as a relation, with the consequence that the correspondence which we want between A r B within the judgment and the fact A r B, in which r does perform its function as a relation, does not exist.

As it stands, the theory does appear liable to that objection, which, however, can surely be met by what is either a reinterpretation (it may be what Russell intended) or a modification. If we distinguish between two phases of judgment, namely, entertainment and assertion (or denial), the difficulty can be made to disappear. At the stage of entertaining, if the mind has to combine the two terms A and B and the relation r, it can produce not more than two combinations, entertaining either A r B or B r A; the remaining verbal combinations A B r, r B A, etc. represent no thinkable combinations, nothing which can be entertained. That is to say, at the entertaining stage r must already be doing its job as a relation, restricting the possible propositions to A r B and B r A, and already providing the propositions with their unity. Then, in the light of the evidence or prejudice, or whatever else induces one to make up one's mind, intervenes the second stage of asserting or denying the proposition entertained.

Such an account retains what is essential to the theory: it avoids substantial propositions and replaces them by their

> elements, viz. particulars and universals; it makes not only the occurrence of a proposition but also its unity dependent on the process of judging; and it does not alter the account of truth. It simply takes cognizance of the fact that one cannot think in terms of relations without thinking of them as relating the appropriate number of things (as one cannot think in terms of qualities without thinking of them as qualifying something), and of the consequential fact that although the unity of the proposition does depend on the mind in the sense that it is the mind which entertains or formulates, it does not depend on the mind in the sense that the mind can produce it how it likes. With a given relation and terms only certain unities are possible; within that field of selection the mind is free but not outside it, for what the mind shall entertain is to that extent conditioned by the relation which is to be the component of the proposition entertained."[16]

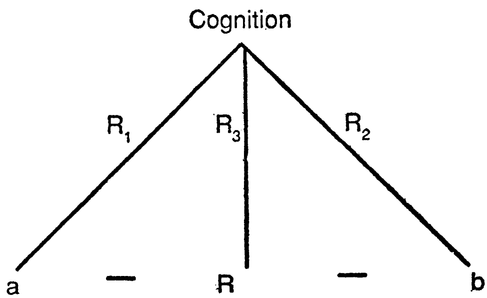
But this solution of Woozley raises many points. It seems to give up the position that the unity of the proposition is mind-dependent in any essential way. To say that 'with a given relation and terms only certain unities are possible' is to introduce a concept of possibility of structures which is wholly mind independent. To say that 'the mind cannot produce it how it likes' is not to say that it does not produce it at all. Even in the production of such material objects like tables and chairs, the carpenter has to work within the limits of possibility but that does not mean that the carpenter is not producing tables and chairs. Thus to say simply that the mind has to produce the proposition that it entertains within the limits of what is possible, is not to reduce the role of mind of merely selecting the unities which are floating readymade in possible worlds.

If the second stage consists merely of 'asserting or denying the proposition entertained' then the entire point in Russell's theory of judging as a multiple relation is lost. It is a relation between a judging mind and the proposition entertained and in entertaining the proposition is not produced but selected from among the possible structures. This reduces judging to a two term relation

[16] *Ibid.*, pp. 126-28.

between a judging mind and a readymade proposition in a possible world.

Now we shall explain the Navya-Nyāya theory of cognising a relational structure *aRb*. The first point to be noted here is that according to Navya-Nyāyā there is no difficulty at all in holding that one and the same real entity functions in one context as a relation and in another cognitive context as a term. This is because of the Navya-Nyāya definition of a relation as being related to a cognition in a special way. Thus in the cognition of *aRb*,



a is the qualificandum *of* the cognition and *relative to* the qualifier *b*, and R is the relation (qualification) between *a* and *b*. What is the relation in a cognised structure is determined completely by R_3. According to some Navya-Nyāya philosophers, R as a relation in *aRb*, is cognited *never* under any mode, whereas the qualifier, *b*, is cognised under no mode only if it is a universal or any other unanalysable property nor referred to by any word. But, really, to be a relation in a cognised structure is to be related to the cognition by R_3.

Now what about the unity of the structure ? The cognising subject has no role to play in this unity; the subject is the self in which the cognition inheres, just as the red colour of a flower inheres in it. The unity of what is cognised is due merely to the fact that *one* cognition is related to the three elements, *a*, *b*, *R*, by the characteristic relations, R_1, R_2, R_3. It is not necessary that the unity should be a fact in order that it be cognised. If the cognition is false, *aRb* is *not* a fact; i.e. *b* is *not* actually related to *a* by R. Yet all the three elements, *a*, *b*, *R*, must be real separately so that the cognition can be related to them by

the different relations. Thus to be related to a cognition by R_3 is to be a relation between *a* and *b* both of which are cognised. The cognition does not *produce* any related structure either in the actual world, or in the possible world. Even if there is no factual *unity* of *a*, *R*, *b*, still they will be cognised as such a unity, by being related to the cognition by characteristic relations. Thus the qualificandum-ness resident in *a* determining (or, is determined by), the qualifierness resident in *b*, simply means that *aRb* has been cognised in one cognition as a related structure. To be cognised as a related structure, it is not necessary that this related structure be there in this or in any possible world. Navya-Nyāya does not admit any possible worlds. This conception of a qualificative cognition is the consequence of the Navya-Nyāya definition of relation as that which produces a qualificative *cognition* of the form *aRb*, not that which relates, forms a unity of *a* and *b*, either in this or in any possible world. Only when the cognition is true, there is an objective relational complex corresponding to it. This relational complex is not a fact in the sense of the *Tractatus*, but only a complex object which is not an additional ontological reality over and above the three elements of the complex, *a*, *b*, and *R*.

3. *The Structure and Ontological Status of a Self-Linking Relation*

As we have already seen that what is usually translated as a self-linking relation is really a self-linking term. This term is ontologically real and may belong to any category of reality. Thus the self-linking relations are ontologically identical with the real entities which are its terms. There are three different theories held by different sections of Navya-Nyāya philosophers:

(a) According to one section when two terms are related but in the ontology we do not find any relation over and above the terms, then a term has to be ascribed the twofold function in the cognition. It is held that the relation is really, ontologically, identical with the first term of the relation, i.e. its predecessor (*anuyogin*).

(b) A second theory is that in such cases the relation is ontologically identical with its second term, i.e. the successor (*pratiyogin*).

(c) According to another section of Navya-Nyāya philosophers, the relation in such cases is ontologically identical with both the terms, i.e. both the predecessor and the successor of the relation.

In Navya-Nyāya a relation is often denoted by an abstract term formed from a relative term. For example, the relation of being the father is denoted by 'fatherhood'. Now this way of forming a relational abstract gives rise to some difficulties of interpretation. Fatherhood is a property of a father, must belong to a father who, however, must be related to his offspring. This relation to someone who is an offspring of someone who is his father is not evident in the relative abstract 'fatherhood'. So in Navya-Nyāya the relation, being a father of, is denoted by '(one's own father)-hood'. This means that the relation is really a relational property:

$$(\lambda x)\,(Fxy) = F'y$$

with a free 'y' in place of the successor. So in Navya-Nyāya 'one's own' always stands for a free variable in the position of the successor. Thus, more generally, a relation in Navya-Nyāya, is a relational property belonging to the predecessor, thus:

$$(\lambda x)\,(Rxy) = R'y$$

instead of the usual Western concept of a dyadic relation as a dyadic predicate

$$(\lambda x)\,(\lambda y)\,(Rxy) = R''$$

with two vacant places.

As the free variable is to be substituted by a name of the successor, the relative abstract is necessarily an abstract formed from the relative term denoting the predecessor. So the converse relation of fatherhood is offspringhood which is denoted by the abstract formed from 'offspring' which denotes the predecessor of this relation.

This explains why Navya-Nyāya uses the locution relation of *a in b*; for *b* is the predecessor of this relation—a property *b*-ness, which belongs to, is *in*, *b*. As we have already noted, the sense or direction of the relation is *from* the successor *to* the predecessor.

As we have already seen some special relations like inherence have special names which are not relational abstracts. All self-linking relations are denoted by such abstracts, although other

relations which are ontologically not relations but belong to some other category, still have special names, for example, contact. Contact is a relation even though it is a quality. We shall note here a very special feature of the Navya-Nyāya relation, 'samavāya' which is often translated as 'inherence'.

According to Navya-Nyāya *samavāya* is a relation which holds between different types of entities. The relation is completely defined by listing the predecessor and their successor exhaustively, although other types of definitions of this relation have been given:

Predecessor		*Successor*
(1) parts	—	whole
(2) substance	—	quality
(3) substance	—	motion
(4) substance, quality, motion	—	their universals
(5) eternal substances like atoms	—	their self-differentiating individuality.

Now, it is obvious that 'samavāya' cannot be translated by 'inherence' if we translate 'anuyogni' and 'pratiyogni' as 'predecessor' and 'successor' respectively. In English we say,

"qualities, actions, universals, inhere in substances"

where substance is the successor and qualities etc. are the predecessor, showing that inherence is really the converse of *samavāya*. So we shall always use 'inherence-converse' ('inherence') as the translation of *samavāya*.

4. *The Navya-Nyāya Methods of Stating Relations*

Navya-Nyāya philosophers used different methods of stating relations of different types. As we have already seen a relation when stated in language, i.e. ordinary Sanskrit, is at once promoted to a term and ceases to function as a relation. Yet it is absolutely necessary to state what relation has been cognised in a qualified cognition. For it may so happen that between two fixed terms different relations hold and cognitions will be different if different relations are cognised. So in the Navya-Nyāya technical language these relations are denoted by words and hence

cognised as terms when the meanings of these words are understood. Yet the convention is that by introducing the term 'limiting relation' in the technical language of Navya-Nyāya we are to understand that in the cognition this particular relation has been cognised to hold between the qualificandum and the qualifier.

It is interesting to note that relation holding *between* the qualificandum and the qualifier is still grouped with the qualifier and not with the qualificandum. For example, the cognition

C 1 jar-possessing is the ground

the ground is the qualificandum, the jar the qualifier and contact is the relation *between* them. In the technical language of Navya-Nyāya this cognition will be described as having

C 1 N—N., the qualifier-ness, limited by jar-ness and by the relation of contact, determining the qualificandum-ness limited by ground-ness.

It is the qualifier-ness which is limited by a limiting relation that is cognised as holding between the qualificandum and the qualifier. The question may be asked: why is the limiting relation not of qualificandum-ness but always of qualifier-ness, although the relation is said to hold *between* the qualifier and the qualificandum? It may appear that a relation holding between them can be taken with either the qualificandum or the qualifier with equal propriety. Yet Navya-Nyāya invariably regards the relation as limiting the qualifier-ness but never the qualificandum-ness. The reason for this is that a term invariably produces a cognition of the qualifier but not of the qualificandum. Thus the term 'colour-possessing' produce the cognition of colour but not of that which has the colour or that in which the colour inheres.

Another argument for grouping the relation with the qualifier is based on the Navya-Nyāya theory of preventer-prevented relation among cognitions. Thus the cognition of colour-possessing is prevented by the cognition of (absence-of-colour)-possessing, i.e. the cognition of presence of colour prevents and is prevented by the cognition of absence of colour. But in order to have this preventer-prevented relation between cognitions, it is absolutely necessary to consider the relation manifested in the cognition.

Whatever is coloured must have colour by the relation of inherence. Absence of colour must be an absence the counterpositiveness of which is limited by inherence. It is important to distinguish here between two relations which are involved in a negation on absence. For example in

N 1 (negation-of-jar)-possessing is the ground,

there is a relation between the negation of the jar and the ground. According to Navya-Nyāya philosophers we cannot find any relation over and above its two terms, namely, the ground and the negation of the jar. If a jar is on the ground there is a relation, contact, which is other than the ground and the jar. But in the case of a ground and the negation of the jar there is no relation other than its terms. So according to Navya-Nyāya this relation is ontologically identical with a particular ground at that time when there is no jar on it.

But there is another relation here. This is because whenever there is negation of something, here, the jar, it is absolutely necessary to state *the relation in which that something* (the jar) *is considered to be present somewhere else*. For according to Navya-Nyāya it does not make sense to negate anything which cannot be present anywhere *in that relation*. There is negation of the jar on the ground in the sense that the jar is not in contact with the ground because the jar can be in contact with something else. Without specifying the relation which limits the counterpositiveness, a negation of the jar can be said to be on the ground and also the jar can be said to be present on the ground at the same time. For the jar which is not present on the ground by the relation of contact is present on the ground by the relation of contemporaneity; for the jar which is not on the ground may still be contemporaneous with the ground, may exist with the ground at the same time.

Thus every negation involves two relations, (i) a relation of the negation to its locus and (ii) the relation in which the counterpositive has to be present somewhere. It is only when the limiting relation of counterpositiveness be identical with the relation by which something is present somewhere, that a certainty of the negation of something prevents a cognition of presence of that thing.

5. *Operations on Relations*

Two operations are very often used: sum and product of relations. The word for 'the sum of two relations' is *anyatara sambandha* and for 'the product of two relations' (*ubhaya sambandha*). The operations are, of course, generalised to cover more than two relations. For example, the word for 'the sum of three or more relations' is *anyatama sambandha.*

There does not seem to be any operation corresponding to complementation on relations.

6. *Chain Relations* (*paramparā sambandha*)

Navya-Nyāya philosophers very often use chain relations of two or more relations in various ways. In one form the chain relation is nothing but the relative product of two or more relations. For example the eyes are in contact with the jar and the jar is related by inherence-converse to its colour. So the eyes are related by contact/inherence-converse to the colour of the jar. This is the relation of the eye to colour of the jar, in which the eye is the successor and the colour of the jar is the predecessor. This is a clear case of relative product of relation.

(i) (e C j. j I c-j)$\rightarrow$e C/I c-j

where 'e' stands for the eye, 'j' for the jar and 'c-j' for the colour of the jar, 'C' for the relation of contact, and 'I' for the converse of inherence.

But Navya-Nyāya uses chain relations, without using converses of relations. So we get here two more forms of chain relations.

(ii) (Ez) (xRz. ySz)

which will be a relative product of $R/\breve{S}$,

(iii) (Ez) (zRx. zSy)

which will be a relative product of

$\breve{R}/S$.

As Navya-Nyāya philosophers do not use the concept of converse relations, they use all the three forms of chain relations.

For a converse of a relation, Navya-Nyāya uses the concept of determiner. Thus if Daśaratha is the father of Rāma then

Daśaratha is the predecessor (locus) of the relation, being the father of, or fatherhood. Now because, in this case, father is relative to son, Navya-Nyāya philosophers say, that the fatherhood resident in Daśaratha, determines or is determined by, the sonhood resident in Rāma. Now, as we have explained above, if Daśaratha is the father of Rāma, then the *direction* of fatherhood is from Rāma to Daśaratha. Now to have the converse of this relation, its direction has to be reversed, it must be from Rāma to Daśaratha. This relation is sonhood. Instead of saying sonhood is *the converse* of fatherhood, Navya-Nyāya philosophers say that sonhood is that which determines (or is determined by) fatherhood; so sonhood is the determiner of fatherhood.

There is a further point to be noted here. It is indeed true that the sonhood resident in Rāma determines the fatherhood resident in Daśaratha. But what exactly is the relation *of* Daśaratha (the successor) to Rāma (the predecessor)? This is

sva-niṣṭha-pitṛtva-nirūpakatva

which means, being the determiner of fatherhood resident in *oneself* (i.e. Daśaratha).

The 'self' or 'one's own self' etc. stand for a free variable which has to be replaced by the name of the successor. As Daśaratha is here the successor of the converse of fatherhood, 'oneself' stands for him. The sonhood resident in Rāma is the determiner of the fatherhood resident in Daśaratha. Therefore, sonhood resident in Rāma = being the determiner of fatherhood resident in Daśaratha.

But the *general* sonhood relation has got nothing to do Rāma or Daśaratha; this generality of the converse relation is achieved by dropping Daśaratha and putting in its place, 'oneself'. Thus the relation *being the determiner of fatherhood resident in oneself* is the *general* relation sonhood.

7. *Paryāpti Relation*

There is a long-drawn controversy among Navya-Nyāya philosophers about nature of *paryāpti* relation. There appear to be three different theories on the subject: (i) There is no such thing as paryāpti, hence there is no question regarding it as a relation;

(ii) The so-called paryāpti relation is just inherence; (iii) Paryāpati has to be postulated as an additional relation besides inherence. We shall explain only this third theory.

Paryāpati as an Additional Relation

Paryāpti has to be admitted as a separate relation in order to explain our cognition of number. For example when we cognise two pots as two, the number two-ness may be said to belong to each of the objects by inherence. For, two-ness is a quality just like any other number. A quality belongs to a thing which has it by the relation of inherence. Thus it will be quite correct to say that each of the two things has the number two-ness by inherence. Yet it will be obviously wrong to say that each of the two things is two. Thus it is necessary to postulate a relation which will justify ascribing two-ness two objects without ascribing it to each. Paryāpti is postulated as this relation by which a number like two-ness can be ascribed to two things without making each thing two.

Inherence cannot explain this relation between two things taken together and a number like two-ness. A quality is attached to each thing by inherence. For inherence obtains between a thing and its qualities, etc. Now if two-ness is regarded as a quality it cannot inhere in any qualities or any category other than substance. This will mean that we shall not be able to count qualities, motions, universals, etc. Yet every Nyāya text has stated that qualities are twenty-four in number, motions five, etc. This means that not merely substances but reals of all categories can be counted. As a matter of fact even the categories have been counted. This shows that number even if it be a quality cannot be ascribed to those which are numbered by the relation of inherence. This shows that our cognition of number resulting from counting is not that of a quality inhering in the objects counted. Hence it is absolutely necessary to postulate an altogether different type of a relation, other than inherence, in order to explain how objects belonging to all categories can be counted.

But then a difficulty arises in explaining the metaphysical status of the totality to which numbers like two-ness have to be ascribed without ascribing them to the members of the collection. According to Navya-Nyāya philosophers like Jagadīśa, Gadādhara, etc. a totality has no reality over and above the individual things which constitute the totality. Now, if there is no totality over and above the individual things, then how can numbers like two-ness upwards be ascribed to the totality? For there is no totality to which the number can be ascribed even by the relation of paryāpti.

The other difficulty is to explain how anything can belong to a totality by any relation without belonging to the individual objects constituting the totality. If it has to be admitted that nothing can belong to a collection by any relation whatsoever without belonging to each and every individual object constituting the collection then the very purpose of postulating paryāpti as a relation is defeated.

The second difficulty is sought to be solved by Mathurānātha, Gadādhara and others by denying the so-called law that nothing can belong to the collection by paryāpti relation without belonging to each and every object individually which constitutes a totality. According to Navya-Nyāya there are two types of relations—of pervasive occurrence and of non-pervasive occurrence. A relation is of pervasive occurrence if it relates its successor to the whole of its predecessors. For example, if an object is a man, then humanity is present pervasively in him in space as well as time. There is no part of the man in which humanity is not present; nor is there any time when humanity was not, or will not be, present in him so long as he lives. But this is not so, for example, with colour. A pot may be partly black and partly red, or sometimes black and sometimes red. Hence when a thing is said to be red, it makes sense to ask if it is red all over and always. Thus colour (not pigment) belongs to a thing by a relation which is of non-pervasive occurrence.

When Mathurānātha and Gadādhara assert that numbers like two-ness can belong to a collection without belonging to each individual object of the collection, by the relation of paryāpti, they imply that paryāpti as a relation is of non-pervasive

occurrence. The number belongs to the totality without belonging to the individual objects of the totality.

Jagadīśa, however, criticises this theory held by Mathurānātha. A relation of non-pervasive occurrence can relate the successor to a part without relating it to the whole of its predecessor, but it is impossible for any relation to relate its successor to the whole of its predecessor but not to its parts. Jagadīśa explains his objection in the case of paryāpti relation by the following rule : it is impossible that a successor like two-ness be related by paryāpti relation to two things without relating two-ness to each of the two things. But then the very purpose of postulating paryāpti as a separate relation seems to be defeated.

Jagadīśa, however, overcomes this difficulty by introducing the notion of a relation as delimited by a property belonging to the predecessor. This point can be explained by an example. Suppose a monkey is sitting on the trunk of a tree. Here there is contact between the monkey and the tree. But there is also absence of contact of the monkey with the top of the tree. So in order to explain exactly where the monkey is sitting on the tree, we have to limit the tree, i.e. the predecessor of the relation of contact. We shall have to say that the contact of the monkey is with the tree as limited by the trunk, but there is absence of contact of the monkey with the tree as limited by its branches. So also in the present case, we cannot say that two-ness belongs to this (individual) object as limited by this-ness; for two-ness belongs to two things, but not to this thing. So Jagadīśa's solution makes use of the concept of the limitor of the predecessorness of the relation of paryāpti. This also solves the problem of the metaphysical status of two things or the collection of two things. In the ontology, there is no collection of two things over and above the individual things. Still one can cognise one thing as one, and cognise another thing, too, as *one*; and then *conjoin these two cognitions*, not the things themselves, to get a conjunctive cognition 'this is one, and that is one'. This *conjunctive cognition* produces the number two (-ness) in the things which have it by paryāpti relation. There are two points to be noted here.

(a) Numbers, though attributes, do not belong like colour, etc. They are *produced in objects* by counting which is always by

conjoining one cognition to another. A person will cognise the number if and only if *he* has counted the objects. For the presence of the conjunctive cognition not merely produces the number in the objects, but also is necessary for cognising the number. Thus one who has not counted, and hence does not have the conjunctive cognition, cannot cognise the number.

(b) Although a collection is not an ontological reality over and above the individual things, still one can *cognise* a collection as the object of a conjunctive cognition. Jagadīśa, by using the concept of limitor of predecessor-ness shows how a collection can be an object of a true cognition, even though ontologically there is no such entity.

CHAPTER 2

'BEING IN' IN ARISTOTLE AND NAVYA-NYĀYA

I. ARISTOTLE'S THEORY

Aristotle in his *Categories*[1] introduces an important distinction among things-in-themselves and subsequently divides them in four fundamental classes. The key-terms of this distinction are 'being predicable of or said of a subject' and 'being present in a subject'. By 'being present in a subject' he does not mean one present in a whole as its parts but one which is incapable of existence apart from the said subject. Accordingly, of things themselves (i) some are predicable of a subject and are never present in a subject. Thus man is predicable of a subject i.e. individual man, but never present in any subject; (ii) some things are present in a subject but are never predicable of subject. For, a certain point of grammatical knowledge is present in the mind, but is not predicable of any subject; (iii) some are both predicable of a subject and present in a subject. Thus, while knowledge is present in the human mind, it is also predicable of grammar; (iv) Finally, there is a class of things which can be neither predicable of a subject, nor present in a subject, for example, the individual man or individual horse. Generally, it can be said that things which are individual and numerically one can never be predicated of a subject. But some individual things are present in a subject, namely, a piece of grammatical knowledge which is present in a mind.

J.L. Ackrill[2] comments that Aristotle's fourfold classification of things depends on two phrases—'being said of something as subject' and 'being in something as subject'. He holds that the second phrase serves to distinguish qualities, quantities and the elements of other dependent categories from substance which is

[1]'Aristotle's Categories', tr. J. L. Ackrill in *Aristotle* ed. J. M. E. Moravcsik, pp. 90ff.

[2]*Ibid.*, pp. 103-104.

said to possess independent existence. The former distinguishes species and genera from individuals.

According to some commentators of Aristotle, 'being said of' and 'being in' happen to introduce two different notions, the former being linguistic or grammatical and the latter metaphysical or ontological. Hence the word 'subject' in 'being said of a subject' signifies grammatical subject and in 'being in a subject' the substrate or metaphysical subject. But Ackrill holds that it is evident that Aristotle's fourfold classification is a classification of things, not of names. For him, being said of a subject is no more a linguistic property than being in a subject. If virtue is said of generosity as subject, the sentence 'generosity is virtue' expresses a truth in which 'generosity' is the grammatical subject. But the sentence is not about names 'virtue' and 'generosity'. It is absurd to call generosity a grammatical subject. Again if A is present in B as subject then B is a substance. But this does not amount to saying that 'subject' in 'being in a subject' means a substance or substrata. According to Ackrill, 'subject' means neither grammatical subject or substance, but is a mere label for what has anything 'said of' it or 'present in' it.[3]

According to Aristotle whenever one thing is predicated of another as a subject, all that which is predicable of the predicate will be predicable of the subject also. For example, man is predicated of the individual man and animal of man, so animal will be predicated of the individual man also, for the individual man is both a man and an animal. So, for him, the relation *being predicable of* as well as the relation *said of*, is transitive.

Aristotle holds that every simple expression signifies either a substance or a quality or a quantity, relation, place, time, position, state, action or affection. The terms 'man' or 'the horse' fall under the category of substance, the attributes 'white' 'grammatical' under that of quality; 'two cubits long', 'three cubits long' under the category of quantity; 'double', 'large', etc. under that of relation. The examples of the category of place are such terms 'in the market place', 'in the school', etc.; of time 'yesterday', 'last year'; of position 'lying', 'sitting', etc. : examples of state are 'shod', 'armed', etc.; of action 'cutting', 'burning', etc. and the examples of category of affection are such terms as 'to

[3]*Ibid.*, p. 106.

be lanced', 'to be cauterized', etc. According to H.W.B. Joseph[4] the word 'category' means predicate and the categories may be described as the list of predicates.

In Chapter 5, of the *Categories*, Aristotle draws an important distinction between a primary and a secondary substance by saying that substance in the truest, primary and in most literal sense of the word is that which is neither predicable of a subject nor present in a subject, for instance, the individual man or horse. Secondary substances are those to which as species the primary substances *belong* and also the genera of those species. For instance, the individual man *belongs to* the species man and animal is the genus of the species. So both man and animal are to be regarded as secondary substances.[5]

It is evident that if something is said of a subject, both its name and its definition are necessarily predicated of the subject. For instance, 'man' is predicated of the individual man. Now in this case the name 'man' is applied to the individual, for we use the term 'man' in describing the individual. The definition of man will also be predicated of the individual man, since the individual man is also a man.

On the other hand, Aristotle maintains with regard to things which are present in a subject, in most cases neither the name nor the definition is predicated of the subject. In some cases, though, the names of such things are predicated of the subject. For instance, the colour white is present in a body and a body is called white. But the definition of white will not ever be predicated of the body.

Aristotle claims that only a primary substance is capable of independent existence and that the existence of the things of the other categories is dependent. Thus he says : "Every thing except primary substances is either predicable of a primary substance or present in a primary substance. This becomes evident by reference to particular instances which occur. 'Animal' is predicated of the species 'man', therefore of the individual man, for if there were no individual man of whom it could be predicated, it could not be predicated of the species man at all. Again, colour is present in body, therefore in individual bodies, for if

[4]*An Introduction to Logic.*
[5]*Categories* 5, 1 15.

there were no individual body in which it was present, it could not be present in body at all. Thus everything except primary substances is either predicated of primary substances, or present in them, and if these last did not exist, it would be impossible for anything to exist".[6] So, for Aristotle, primary substances are basic and the existence of secondary substances presuppose the existence of primary substances. Thus the difference between the primary and the secondary substance is that the primary substance is the ultimate subject that can be predicated of nothing else.

When Aristotle says 'called a substance most strictly, primarily', does he mean 'substance' is used in two different senses? "But if we tend to interpret him thus it would upset his whole scheme of categorial classification."[7] Ackrill holds that Aristotle is certainly aware that the distinction between primary and secondary substance is not like that between two categories or that between two genera in a category, but he fails to explain clearly the nature of this distinction.[8] Ackrill further points out that when Aristotle states that when something is said of a subject both its name and its definition are necessarily predicated of the subject, the relation of 'said of' holds, not between words but between things. To say that A is said of B is not to say that 'A' and the definition of 'A' are predicable of B. The latter is a fact about language which follows from the fact about a relation between two things.

Aristotle holds that it is a characteristic common to every substance not to be present in a subject. For a primary substance is neither said of a subject nor present in a subject. Secondary substances also are not present in any subject. For man is predicated of the individual man, but is not present in any subject; since manhood is not present in the individual man. Moreover, it has been said above that when a thing is present in a subject, though the name may be applied to that in which it is present, the definition can never be applied. But the definition of the secondary substance as well as the name are predicated of the subject.

Ackrill says that the phrase 'being in', as used by Aristotle, can

[6]*Ibid.*, Chap. 5, 2a 35-2b-5.

[7]*Ibid.*, p. 113.

[8]*Ibid.*, p. 106.

be taken to mean that A is in B if and only if (a) one could usually say in ordinary language either A is in B or that A belongs to B, (b) A is not part of B and (c) A is inseparable from B.[9] So when Aristotle holds that the secondary substance is not in primary substance he does not mean that a secondry substance can exist separately from the primary substance or that a given secondary substance can exist separately from any given individual. Rather he seems to mean that in ordinary speech we can never say man is in Callias. Ackrill points out that if this is the implication, the same thing can be said of genus and species of other categories too, for no genus and species in any category can naturally be described as in any subordinate genus, species or individual. So the distinguishable mark of secondary substances should be that they are not in any other species, genera or individual, not that they are not in subordinate species or genera or individual. For example, virtue is not in generosity but it is in soul, while animal is not in man and not in any thing else either.

II. NYĀYA THEORY

According to Nyāya, 'being in' designates a relation of a special type. This relation is often identified as the object of the knowledge that *a is in* (*on*) *b*. Whenever we know something to be in something the two things must be related by a special type of relation. For we do not know that one thing is in the other whenever they are related. For example, if we know that A is the father of B, then although A and B are related still we do not know B to be in A. Thus according to Nyāya, the first necessary condition of knowing or saying that something is in something is that the two things must be related by a special type of relation. Nyāya calls this type of relation occurrence-exacting relation (*vṛtti-niyāmakasambandha*). Thus all relations are not occurrence-exacting, all and only those relations which produce the cognition of one thing in another are occurrence-exacting relations. 'Being in' in Nyāya means different things in different contexts—(i) being physically contained in, (ii) belonging to (as when a quality belongs to a substance, it is said to *be in* it).

Occurrence-exacting relations may obtain between various

[9] *Ibid.*, p. 104.

sorts of ontological entities. We may say, for example, that milk is in the glass, or that the things are in the box, where both the first and the second terms of the relation *being in* are things or substances. Even a primary substance like John may be said to *be in* the room. Thus the Nyāya concept *being in* is much wider than the Aristotelian concept.

The first terms of occurrence-exacting relations which produce the cognition of the form '*a is in b*', are called 'properties of the second terms' (*dharma*), and the second terms are called 'property-possessing' (*dharmin*). Thus every property *is in* that which possesses it. Thus we have the definitions:

Df. 1. x is in y = x R_0 y, (x is a property of y) where R_0 is an occurrence-exacting relation.

Df. 2. x is y-possessing = yR_0x

Thus *possessing a property* is the converse of *being in*. Thus to say that y *is in* x is to say that y is a property of x, or to say that x is y-possessing.

So far *being in* has been explained as the relation which is the object of a certain type of cognition, namely, '*a is in b*'. Now according to Nyāya, every true cognition represents facts as they are; so there must be something factual corresponding to every true cognition of *being in*. According to Nyāya, this ontological fact is the relation between a container and the contained or the content. When we know that John is in this room then this room is the container (*ādhāra*) and John is the contained (*ādheya*). Thus when one thing is in another it is obvious that the one contains the other literally, in a very straightforward manner. But according to Nyāya not merely things which are substances (primary substances in the sense of Aristotle) but also entities of other ontological categories can be said truly to *be in* something. In such cases either the first term or the second term of the relation is dependent ontologically on the other. This theory is in contrast with the Aristotelian theory that only the first term of *being in* is a dependent entity. Thus according to Aristotle, if *a* is in *b* then *a* is ontologically dependent upon *b*. But according to Nyāya, there may be cases where *b* will be dependent upon *a* ontologically even though *a* is in *b*. We have already stated that Nyāya uses the terms 'container' and 'contained' to denote the

two things (substances) which are the two terms of the relation *being in*. Now when this relation is generalized to obtain between entities of different categories Nyāya uses the terms 'locus' (*adhikaraṇa*), 'substratum' (*āśraya*) to denote the second term and the term 'superstratum' (*āśrita*) to denote the first term. Thus when we know that *a is in b b* is the locus or the substratum of *a* which is the superstratum of *b*. Now in such a case *a* may be a quality, say, a colour-individual, and *b* is the thing (substance) which possesses this colour. Here *a* is the dependent entity and *b*, the substance, the independent entity. Ackrill has stated that according to Aristotle man cannot be in any individual but according to Nyāya humanity can be present in every individual man and so in this particular man too. Yet humanity being a universal according to Nyāya is an eternal property and hence cannot be dependent on the individual which has it. Thus although, according to Nyāya, we can correctly say that humanity is in John, yet it is not humanity which is ontologically dependent upon John; rather it is the other way round, for it is John who is ontologically dependent upon humanity because without humanity John will not be John. Thus in many cases instances of a universal are ontologically dependent upon the universals which are their essences, and hence cannot be what they are without the universals being present in them. According to Nyāya, we get the following characterization of the relation, *being in*.

General characterization—*Being in* is a relation between objects such that one object is known as being in the other. These objects may both be substances or one or both may belong to other categories. Thus a particular colour-individual is an instance of the corresponding colour-universal and we may say, for example, that redness is in this particular red colour, where both the terms belong to ontological categories other than substance (*dravya*).

A special type of *being in*—For this special type of *being in* an additional condition of inseparability of the two terms is introduced (*ayutasiddha*). But this inseparability is only one-sided and not mutual. Again either the first term or the second term of the relation cannot be what it is outside the relation. This theory of Nyāya goes against the Aristotelian theory that if *a* is

in *b* than *a* alone is the dependent entity in every case. Now this special form of the relation, *being in*, is inherence-converse (*samavāya*) of Nyāya. Aristotle has explicitly affirmed that *being in* cannot be a relation between whole and parts of a thing. Yet according to Nyāya the whole inheres in its parts and can be truly said to *be in* its parts, in this case, because the whole is dependent ontologically on its parts, although the parts are ontologically independent of the whole. In Sanskrit, the language which Nyāya uses, the idiom of 'being in' is the opposite of English usage in this case. Thus in English one says that the parts are in the whole, whereas in Sanskrit one says that the whole is in the parts. And because of this difference in usage Nyāya can hold that the relation of the whole to its parts is inherence—the whole inheres in its parts, is in its parts.

In comparing and contrasting Aristotle's theory with the Nyāya theory we should note a point. According to Aristotle, primary substances can never be in any subject and also cannot be predicated of a subject. We have already seen that according to Nyāya even primary substances can be said to be in another in the more general sense. Even in the specialized sense a primary substance like John may be said to be in his limbs according to Sanskrit idiom. Yet Nyāya too excludes eternal substances having infinite magnitude from ever *being in* anything. The universals which are eternal entities can be said to be in their particulars, because according to Nyāya they are not eternal *substances* but belong to a special ontological category of their own. No eternal substance of infinite magnitude can ever be in anything. Thus corresponding to Aristotle's primary substances, Nyāya admits a type of eternal substances which cannot be in anything. Aristotle further restricts primary substances from being even predicates of a subject; Nyāya does not have any such restriction.

III. IMPORTANCE OF 'BEING IN' FOR INDIAN LOGIC

A fundamental difference in the method of analysing inference (specially syllogism) between Aristotle and Indian philosophers in general, and Nyāya philosophers in particular, becomes evident when we note that Aristotle uses the relation of subject and predicate to analyse inference in order to reveal its logical struc-

ture while in Indian philosophy in general the relation of *being in* is used for the same purpose. "...if you take syllogisms as pure rules stated in letters, e.g. 'a is predicated of all b, b of all c, therefore, a is predicated of all c', as do the Peripatetics following Aristotle, then you treat Logic as an instrument of philosophy".[10] "Aristotle always puts the predicate in the first place and the subject in the second. He never says, 'all B is A', but uses instead the expression 'A is predicated of all B' or more often 'A belongs to all B'".[11]

Here we should note one point. Ackrill has asserted that "A is in B (in the technical sense) if and only if (a) one could usually say in ordinary language either A is in B or that A is of B or that A belongs to B or that B has A (or that ...) ...".[12] But Lukasiewicz, Bochenski and other historians[12] of logic hold that Aristotle uses the expression, 'A belongs to B' in the sense of 'A is predicated of B'. But as Ackrill uses 'A belongs to B' in the sense of 'A is in B', it is obvious that according to Ackrill Aristotle's use of 'belong to' must be in a technical sense, for, according to Ackrill, 'in ordinary language', 'belongs to' is used to mean 'being in' rather than 'is predicated of'. Why Aristotle uses the subject-predicate relation instead of *being in* in the analysis of sentences like 'All A is B' occurring in syllogisms should be obvious, for according to him, it is the subject-predicate relation, not the relation *being in*, which is transitive, and transitivity of the relations stated in the premises is what justifies the syllogism. Hence the relation *being in* could not have been used by Aristotle in analysing sentences like 'All A is B'.

In Indian philosophy, however, it is the relation *being in* which plays the most important part in the logical analysis of inferences. In Indian theories the terms *dharma* and *dharmin* are universally used in determining the 'terms' of inference very roughly corresponding to major, middle and minor terms of traditional Western syllogism. Yet it is obvious that without transitivity of the relation holding between the terms of a syllogism, it cannot be justified. Hence the Indian analysis of inference using the relation

[10]J. Lukasiewicz, *Aristotle's Syllogistic*, p. 13.

[11]*Ibid.*, p. 3.

[12]J. L. Ackrill, *Aristotle's Categories*, chapters I-V, in *Aristotle*, ed. J.M.E. Moravcsik, p. 104.

being in is radically different from the traditional analysis of Western logic. The terms corresponding to the major, middle and minor terms of Western syllogism are '*sādhya*'(s), '*hetu*' (h) and '*pakṣa*' (p). We give below a very rough sketch of inference as analysed in Indian philosophy.

Ind. Inf. 1. 1. $(x)\ (x\ \breve{R}^1_0 h \supset x\ \breve{R}^2_0 s)$

2. $p\ \breve{R}^1_0 h$

3. $\therefore p\ \breve{R}^2_0 s.$

Where R^1_0 and R^2_0 are occurrence-exacting relations so that '$p\ \breve{R}^1_0\ h$' means that h *is in* p by R^1_0. The inference is valid even though neither $\breve{R}^1_0$ nor $\breve{R}^2_0$ is transitive. The validity is assured by the logical nature of the relation which I have very roughly and, for some Indian systems, incorrectly, represented by '$\supset$'. In an inference of the form

Ind. Inf. 2. 1. $(x)\ (x\ \breve{R}^1_0\ h \supset x\ \breve{R}^2_0 j)$

2. $(x)\ (x\ \breve{R}^2_0\ j \supset x\ \breve{R}^2_0 s)$

3. $(x)\ (x\ \breve{R}^1_0\ h \supset x\ \breve{R}^3_0 s).$

the transitivity of '$\supset$' guarantees the validity of the inference. The sentence which I have symbolized by '$(x)\ (x\breve{R}^1_0\ h \supset x\ \breve{R}^2_0\ s)$' expresses the relation of *pervasion* between *h* and *s*. Thus although the terms of the inference, *s*, *h*, *p*, are analysed by using the relation being in, still the validity of the inference is logically determined by the relation of pervasion between *h* and *s*. And as it is obvious, the relation of pervasion is transitive—the pervader of the pervader of something is its pervader—inferences like Ind. Inf. 2. are validated. These inferences correspond, although very roughly, to Barbara, even though the manner of determining the terms in Indian philosophy is completely different from the Western method.

Now we shall show a difference in the method of analysis of an inference into its terms as found in Dharmakīrti's logic and Navya-Nyāya. First we note that Dharmakīrti uses the terms 'substratum' and 'property' uniformly in its definition of 'object

of inference' (*anumeya*), 'similar case' (*sapakṣa*), 'dissimilar case' (*vipakṣa*). 'The object (cognized) in inference is here the substratum whose property it is desired to cognize'.[13] Then about *similar case* Dharmakīrti gives the following definition: 'A similar case is an object which is similar through the common possession of the inferred property'.[14] A *dissimilar case* is defined negatively as that which is "different from a similar case, contrary to it, or its absence."[15] Thus in the definitions of the key-terms denoting the parts of the objective complex known in inference Dharmakīrti uses the relation *being in* which is built into the concepts of substratum and property.

We shall however note an important point of difference between analyses of Dharmakīrti and Navya-Nyāya philosophers of cognitions expressed in sentences of the form 'A is B'. Analysing the inference for one's sake (*svārthānumāna*),

This is a tree because of being a Śiṃśapā (a kind of tree),

Dharmakīrti, as interpreted by Dharmottara, holds *this* to be the substratum of the inference (*p*) and *tree* to be the s.

Dharmottara interprets the inference to mean

This can be called 'tree', because it can be called 'Śiṃpśapā'. '...this object is fit to be called a tree, because it is fit to be called an Aśoka' ".[16]

This contrasts with Navya-Nyāya analysis of conclusions of the form 'A is B'. Raghunātha, for example, says that the conclusion 'this is a cow' may be interpreted in two ways in both of which *this* remains the *p* of the inference but the *s* is different in the two cases. In one case *cow* is the *s*, whereas in the other it is *cow-ness*. Raghunātha, however, points out that in the first case the relation obtaining between *p* and *s* of the inference is the relation of identity—this thing is identical with a particular cow. But in this case, *cow* cannot be regarded as a property of *this* because identity is not an occurrence-exacting relation. If *a* is identical with *b* then *a* cannot be said to be in *b*. On Dharmottara's interpretation, however, the property, *being fit to be called a tree,* is the *s* of the inference and this property can be said to

[13]Th. Stcherbatsky, *Buddhist Logic*, Vol. II., 1958, p. 58.
[14]*Ibid*., p. 59.
[15]*Ibid*., p. 59.
[16]*Ibid*., p. 67.

be in this. Yet it is not clear why the inference has to be interpreted in the way Dharmottara recommends. The conclusion may mean that this thing is identical with the particular object (cow) where the relation obtains between two objects and not the namability of one object in two ways—once by 'tree' and again by 'Śiṃśapā'.

Raghunātha could use the identity relation between *p* and *s* of an inference because he analysed inference not in terms of substratum and property (*dharma* and *dharmin*) but in terms of two terms of a relation (*sambandhin*). He points out that the schema of the rule of inference :

1. $(x)(xR^1h \supset xR^2s)$
2. pR^1h
3. $\therefore pR^2s$

remains valid even when *R* is not an occurrence-exacting relation.

Raghunātha also gives a second interpretation of the conclusion, 'this is a cow' using the relation of inherence so that although *this* remains the *p* of the inference, *cow-ness* now becomes the *s* of the inference. Inherence, being an occurrence-exacting relation, can be used to analyse the conclusion into a substratum (p) and the property (s) which is cow-ness; for cow-ness can be said to *be in* this cow.

This difference between Dharmottara and Raghunātha suggests that the exact definition of *being in* in terms of an occurrence-exacting relation was formulated by Navya-Nyāya philosophers who came historically after Dharmottara. Buddhist logicians like Dharmakīrti and his commentators uniformly use the terms 'dharma' and 'dharmin' in their analysis of inference without giving an exact definition of these terms.

CHAPTER 3

THE NAVYA-NYĀYA THEORY OF UNIVERSALS

I. INTRODUCTION

The concept of *universal* has been formulated in various ways to solve various types of problems, to serve various, often conflicting, purposes. So a formulation specially suited to solve one type of problems, fails, for that very reason, to solve other, conflicting, types of problems. From the very nature of the case it would appear impossible to have one concept do all the work which is naively expected of it. To explain our point, we list, without attempting to be exhaustive, nine different pairs of terms:

(1) universal	...	particular
(2) abstract	...	concrete
(3) essence	..	accident
(4) form	...	matter
(5) reason	...	sense
(6) reality	...	appearance
(7) a priori	...	a posteriori
(8) adjective	..	substantive
(9) predicate	..	subject

It is usual to connect, and where possible to identify, *some* of the first terms of the pairs with universals and the corresponding second terms with particulars. It is obvious that the first terms of all the pairs cannot be identified with universals. For example, if universals are regarded as reals [pair (6)] and particulars as appearances, then it will not be possible to identify them as predicates and subjects; for, even if reality be regarded as a predicate, it will not do to have reality as a predicate and an appearance as a subject of a judgement (proposition, sentence). Moreover, the pairs belong to different spheres—logical,

epistemological, grammatical, ontological, etc.—and involve different types of problems which require different methods of solution.

II. MEANING OF GENERAL TERMS AND UNIVERSALS

It is usual to introduce the concept of *universal* via a theory of meaning of general terms, e.g. common nouns and adjectives. It is pointed out a common noun like 'cat' or an adjective like 'wise' mean any and everyone of a class of *selected* individuals, e.g. particular cats and wise individuals. This process of selecting individuals and collecting them into a class, it is argued, remains inexplicable except on the assumption of a property (or a set of properties) shared in common by all and only those individuals to which the general terms applies. This argument justifies the postulation of a self-identical repeatable common property as the ground for the application of a general term to all and only those individuals to which it applies. A general term applies, refers to, or denotes, all individuals which share some common properties which the term implies or connotes. (The class or collection of individuals is not denoted by the general term, but only its members).

This theory of meaning of general terms leads to a particular theory of universals via a definition of 'universal':

D1 x is a universal = Df x is present in many at the same time.

Ramsay, however, has an objection against the definition of 'universal'. He says:

> Next we have various distinctions between objects based on their relations to space and time, for instance, some objects can only be in one place at a time, others like the colour red, can be in many. Here again, in spite of the importance of the subject, I do not think we can have reached the essence of the matter. For when, for instance Dr. Whitehead says that the table is *an adjective*, and Mr. Johnson that it is substantive, they are not arguing about how many places the tables can be in at once, but about its logical nature.[1]

But this objection of Ramsay depends wholly upon his identi-

[1]P. F. Ramsay, 'Universals', *The Foundation of Mathematics*, p. 113.

fication of *adjective* with *universal*, of *substantive* with *particular*. So instead of being an objection against D1, this may be interpreted as an objection against this identification.

Now the properties common to all the referents of a general term are present in all of them simultaneously. So the common properties general terms imply in order to apply to whatever they apply, are universals in the sense of D1, and the referents of the general term in which the universals are present are the *instances* of the universals. We shall call this theory of universals 'the Theory A'.

The postulation of universals as reasons for applications of general terms also explains why expressions which are grammatically general terms but which do not, because they cannot, apply to anything, cannot imply any universal. Quine's question (raised by him in a different context of meaning of empty *singular* terms) 'Having cluttered the universe with an implausible lot of unactualised possibles, are we to go on and add a realm of unactualisable impossibles?',[2] may be raised about empty general terms too. The Theory A answers this question in the negative, for universals are postulated as *grounds* or *reasons* for the application of general terms, i.e. as *necessary and sufficient conditions of their application.* If a general term fails to apply to anything at all, then there cannot be any universal implied by it, the sufficiency guarantees this. If there is a universal implied by a general term then it applies to its instances. The apparently general term 'G' does not apply to anything; hence there is no universal implied by it. So expressions like 'spherical pyramids of Copilco' do not imply any universals.

This theory, specially the argument, has been criticised from different points of view. The most fundamental objection is by Quine. He points out that the so-called general terms are really not terms at all, but only 'constituent syllables' "Comparable to 'rat' in Socrates".[3] The Theory A analyses the sentence S1

S1. Socrates is a man

into 3 parts—two terms, 'Socrates' and 'man', and the copula 'is'. Every sentence is analysed in this fashion, so that we have always at least one general term as part of a sentence. Quine, on

[2]Quine, *The Methods of Logic*, p.
[3]*Ibid.*, p. 207.

the other hand, analyses S1 into two parts—(1) 'Socrates' and (2) '1 is a man' called 'predicate' in a new sense. He argues, 'The positions occupied by general terms have indeed no status at all in a logical grammar, for we have found that for logical purposes the predicate commends itself as the unit of analysis'.[4] As there are no general terms, there is no problem of explaining how or why they can denote what they denote. The problem has vanished, and with it, the need for a solution. We shall call this theory, 'The Theory Q'.

The Theory Q, however, has its own difficulties. For even if the Theory A stems from a faulty analysis of sentences, still in the Theory Q the problem of meaning of predicates takes the place of the problem of meaning of general terms. Quine himself admits the legitimacy of this new problem. This talking of the predicate.

'(8) 1 used to work for the man who murdered the second husband of 1's youngest sister', Quine says, 'If a meaning for these strange expressions called predicates be demanded, e.g. for (8), an answer is 'former employee of own younger sister's second husband's murderer'. But then we have got a general term as the meaning of 'predicate' in Quine's sense. So it would seem that Quine has not succeeded in eliminating general terms.

Moreover, Quine is not consistent about the radical difference between general terms and 'predicates' in his sense. Introducing the notion of predicate in his sense, he says, "A retreat to the view of capital letters as representing terms, absolute and relative, thus seems indicated when a capital letter occurs monadically. ... We may interpret it as representing an absolute term; while it occurs dyadically.... We may interpret it as representing a dyadic relative term; and so on. Thus 'F' and 'G' may be explained for purposes of the example of the philosophers as representing respectively the absolute term 'philosopher' and the dyadic 'contrdaicts' "[5] "...circled numbers may be viewed simply as a supplementary device, more convenient and systematic than those existing in ordinary language for abstracting complex terms out of complex sentences. Thus the shift which we have made from terms to predicates can be viewed as a case of merely im-

[4]*Ibid.*, p. 207.
[5]*Ibid.*, p. 130.

proving and renaming the idea of term."[6] Thus it is not clear, whether, according to Quine, a monadic predicate, as the unit of analysis, is radically different from a general (absolute) term, or is 'a case of *merely* improving and renaming of the idea of term'.

An objection from a different point of view has been brought against the Theory A. It has been pointed out that there may not be anything positive common to all the species under a genus or all instances of a universal. The different colours, for example, do not have anything positive in common; rather they differ among themselves in a characteristic manner. A colour, say red, differs from all other colours in a way which is totally different from the way it differs, say, from shape. What all colours have in common is not any positive property, but a common way in which every colour differs from every other colour.

We should note here a feature of this type of argument against the Theory A. The argument given for the Theory A is a transcendental one—it will be inexplicable otherwise how a general term can be used to refer to all the particulars to which it does refer. But the above objection is that, as a matter of fact, many general terms, like 'colour' do not imply any positive property common to all the particulars. This is an empirical argument against the transcendental argument of the Theory A.

This type of empirical consideration to decide a philosophical issue has become very popular in recent philosophy. The exhortation 'don't think, but look' in order to find out what, if anything, is common to all instances of a universal which a general term implies in order to apply to them, highlights this type of approach to philosophical problems. But whether a philosophical problem can be solved in this way, or a philosophical theory can be refuted by empirical considerations, is an open question. Alternatively, it may be asked if the question, 'How can general terms apply to all and only those particulars to which it does apply ?' is an empirical question.

There is, however, a philosophical argument behind this empirical consideration. This argument refutes the Theory A by pointing out that it is not necessary for all referents of a general term to share one identical property; it is sufficient if the different referents have 'family resemblances'. It is not necessary to have

Ibid., p. 131.

one identical thread running through all the referents, it is enough if there are overlapping fibres of varying lengths. We shall call this theory 'the Theory W'.

This point of difference (for other important points of difference see below), between the Theory A and the Theory W, can be logically explained by a difference in the scopes of quantifiers, thus :

The Theory A asserts: (LA)	There is something common to all referents of a general term.
The Theory W asserts: (LW)	All referents of a general term have something in common.

What is common is independent of the choice of referents in (LA), whereas it is dependent on the choice of referents in (LW). This way of formulating the difference between the Theory A and the Theory W shows that the former is a logically stronger theory than the latter; for (LA) implies (LW), but not conversely. That is, *if* there is something common to all referents of a general term, this will explain, according to *both* the theories A and W, why the general term applies to whatever it applies to (For further discussion of this point see below.)

III. ABSTRACTION, PARTICULARITY AND UNIVERSALS

There is a definition of 'particular' corresponding to D1 of 'universal':

D2. x is a particular = Df x is present in a particular region of space and/or in a particular period of time.

Particulars so defined are often identified with instances of universals, and are denoted by singular terms—proper names and definite descriptions.

If instances of a universal can only be particulars as defined in D2, then only the instances, but not the universals, are existents. As a matter of fact, the particularity of particulars defined by their location in space and time is the same as their existence. For to exist, (it is often asserted), is to be in space and time. Thus particularity and existence of particulars become the same.

A universal as defined in D1 is not a particular as defined in D2, for a universal is present in all its instances, past, present and future, at the same time. This may be taken to mean that universals transcend the limitations of space and time, or transcend space and time altogether. Thus it will not make sense to say that humanity, for example, is near or far, or has spatial or temporal dimension.

Now if instances of a universal are identified with particulars in the sense of D2, then there cannot be any non-existent instance of a universal. But it is usual to make a distinction between 'a square circle' and 'a golden mountain' by holding that while the former *cannot* apply to anything at all, the latter like any other general term, has denotation, although it has *only* possible instances and no actual instance. But how are we to understand the phrase 'a possible instance' ? In the language of possible world semantics, possible instances will be instances in a possible world. Is this possible world in space and time ? But possible spaces, like n-dimensional space where n is greater than three or four, will be merely concepts and will not, therefore, be able to function as principles of individuation or particularisation.

To avoid this difficulty about possible things, it may be held that all things which can be imagined are possible, though not necessarily conversely. Then, although we cannot conceive a particular object, we can very well imagine it, and the possible instances of *golden mountain* are all imaginable. So the general term 'golden mountain' and 'square circle' are different in kind, the former being applicable to possible instances, while the latter being not applicable to anything at all.

But this way of interpreting the concept of possibility is not free from difficulties. For example, it is not clear if it will make sense to ask whether we can imagine the *same* object twice, in the absence of any criterion of identity of imaginary objects. The imaginary objects cannot be identified with images without further ado, for it is clear that we cannot have the same image twice separated by a temporal gap, i.e. a criterion of identity of images is available.

Because of difficulties in distinguishing between particulars and universals by means of location and duration, an altogether differ-

ent kind of distinction has been proposed by many. A particular, according to this theory, is a bundle or collection of universals, different particluars of the same type are different collections having one universal as a common item, and other universals in the collections varying from particular to particular. Thus there is no difference in kind in the stuff of which universals and particulars are made. This theory is sought to be justified on various grounds. It is pointed out that if we abstract the spatial and temporal aspect from a particular, we do not necessarily have a universal. F.H. Bradley for example, held that the mere separation of the *that* from the *what* of a particular does not yield an ideal content which is a universal. The content thus separated from its existence has to be 'garbled', the special features of the contents have to be rejected and only the common features retained, in order to yield the ideal content. That is, even without the *that*, we may have a particular content.

Husserl's epoché is a 'bracketing of existence' of particular objects; yet this bracketing of existence by itself does not yield essences or universals—a further reduction, eidetic reduction, has to be performed to obtain essences. Thus a particular cannot be simply a concretisation of a universal in space and time. This explains why in natural languages we do not have any method of forming abstract nouns from proper names. For the property of being Socrates, or Socratising, for example, is still a particular, though without existence and therefore may be used without any ontological commitment. But this does not make 'Socratise' a *general* predicate, for it can be truly predicated of one and only one individual. So the phrase 'the thing that Socratises' contains an unnecessary 'the'.

A general term like 'man' denotes not merely those who actually exist at a particular time, but all men, past, present and future. Past and future men may be conceived as possible men, i.e. as no longer, and not yet, actual; still it is not necessary to do so. Past and future men may be connected causally, or otherwise objectively, with the actually existent men; possible men cannot be causally related with actual men. The relation between actual and possible objects is not a causal relation.

Although all abstract properties are not universals, all universals in the sense of D1 are abstract properties, and may be denot-

ed or referred to, by abstract terms formed from the general terms. In every natural language there is at least one device of forming abstract nouns from concrete common nouns although there may not be any uniform method of forming abstracts from complex concrete terms of arbitrary length. There is also a method of forming abstract nouns from suitable relational words, like the verb 'marry'. Thus we have the abstract noun 'marriage', and also abstract relational phrases like 'being the father of'. The question here is : Although such words and phrases are abstract terms are they also used to denote universals? Strawson distinguishes between 'universals like marriage' and what he calls indifferently as 'universal-cum-particular'[7] and 'particular-cum-universal'[8], like 'being married to John'. Now Strawson regards, expressions of this latter type as predicate expressions on the ground that such expressions 'as a whole', do not present any fact. Yet it may be noted that 'being married to John' can be predicated truly only of at most one person (at a time) in monogamous societies (assuming that we refer to one individual by 'John'). That is, *being married to John* can be a property of at most one individual at a time, and hence is not a universal in the sense of D1.

Now what about *marriage* ? Is it not a common property of all married individuals ? It may be argued that the answer must be in the affirmative. For, from 'A is married to John' we can infer 'A married', or 'A is married to some man'. Also from 'B is married to Smith' we can infer 'B is married to some man'; and from both together we may infer 'A has a property that B has'. What is common to both A and B are that they are both married (to some man) which must, therefore, be a universal in the sense of D1.

But here we should note a peculiarity of such properties like *marriage*. Such properties are temporal properties which come into being at a particular time by virtue of one's performing certain formal rites. So the property of being married which A has cannot be numerically identical with the property of being married which B has, if John and Smith, (and/or A and B) are different persons. Thus we have two different types of proper-

[7]P. F. Strawson, *Individuals*, p. 137 and p. 189.
[8]*Ibid.*, p. 175.

ties—properties which are timeless, and properties which are produced. Universals are timeless properties; humanity, for example, cannot be said to be produced; but marriages, as every one knows are *made* (even though in heaven). So we have 'marriages', but we cannot have 'humanities' (except in a different sense). We can, of course, have a second order abstract term to denote what is common to all marriages, ('marriage' being itself an abstract term of the first order), but what is common to all marriages will not be common to all married couples.

Navya-Nyāya admits the reality of universals (*jāti*) which are common properties inhering in all instances and which satisfy six conditions. A property which is repeatable and common to many may yet fail to qualify as an ontologically real entity if it fails to satisfy any of the six conditions. One of the conditions of being accorded the status of universal is that the property must not lead to cross-classification of reals. The Navya-Nyāya theory of cross-classification demands not merely that there be entities which are members of both the classes, but also that there be entities in each of the classes which are not members of the other. In the usual Venn diagram we may represent the requirements of cross-classification as given in Nyāya thus :

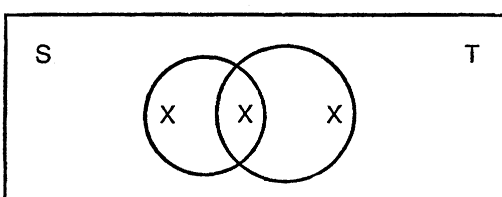
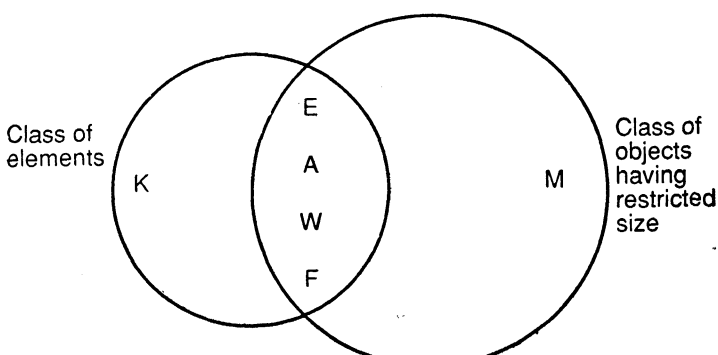


Fig. 1

The property marriage does not have this essential characteristic of universals. People cannot be classified into two *fixed* classes of married and unmarried people. There is a constant influx of people who were unmarried into the class of married people without ceasing to be human beings. This is not the case with classes of cows and horses, for example, for no cow can *become* a horse, nor a horse a cow, while unmarried people can and do get married. A green mango may become red when ripe, and so mangoes cannot be ontologically classified into green and red

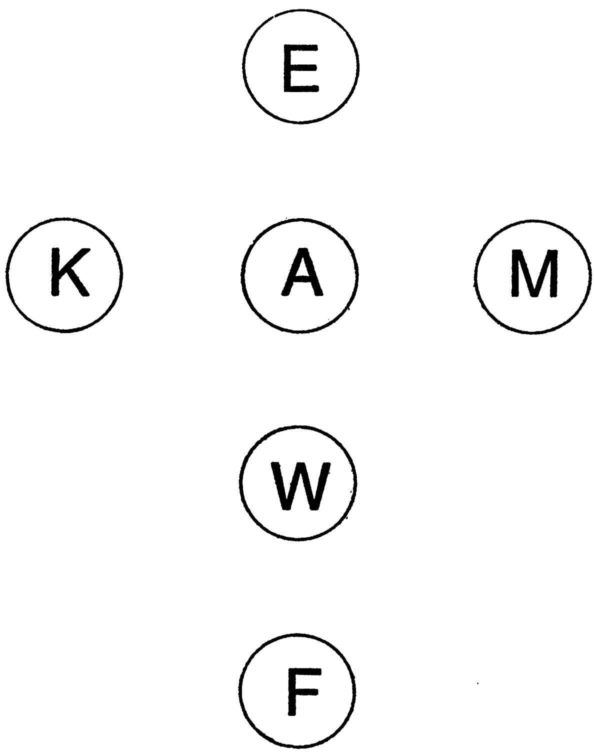
mangoes, although colours can be classified into green and red by universals of green and red colours.

Moreover, according to Navya-Nyāya, abstraction does not always involve generalisation. Navya-Nyāya has an ontological theory about sensory qualities, like colour, taste, etc. Colours are not universals, and are different from universals of colours, just as much as individual men are different from the universal of man. This point may be explained by Fitch's method of abstraction. Thus (*a*/ [*a* is blue]) is different from (b/ [b is blue]) if *a* and *b* are different. The abstract property blueness is not one property common to all and only blue things, is not a repeatable property. That every abstract term does not denote a common property i.e. a property common to, shared by, repeated in, many, follows from Navya-Nyāya refusal to admit cross-classification of objects. For example, the two properties—elementness (*bhūtatva*) and being of restricted size (*mūrtatva*)—are not both universals as they lead to cross-classification of objects in Navya-Nyāya ontology thus:



Earth, air, water, fire and *ākāśa* (K) are the five elements; and the first four elements and also *manas* (M) belong to the second class, *Ākāśa* does not belong to the second class because it is of unrestricted size; and manas, which has atomic size, is not an element. Thus the two properties give rise to cross-classification even though they are not regarded as universals for this reason. To prevent this, the property, elementness, is not regarded as *one* property common to all and only elements, but there are as many element-ness as as there are elements. Thus the property,

(earth/ [earth is an element]) and (air/ [air is an element]) are two different properties. So also with the other property being of restricted size. Thus these properties cannot classify, and hence there is no possibility of cross-classification of objects. Whenever an apparent case of cross-classification is found, at least one of the apparently classifying properties is not a classifying property at all. This may be explained by the following diagram:



where there is no cross-classification as individual elements form separate classes. Each of E, A, W, F belongs to two unit classes, corresponding to the two properties. Ontologically these properties are identified with the individual things that have them. Thus, ontologically, earth is identical with elementness as also with the property having restricted size *belonging to it*. Thus ontologically these two properties of earth are identical; yet epistemologically they are different because they are cognised under different

epistemic modes of being an element and having restricted size. Thus abstracts are not necessarily properties common to many. Such non-classifying properties are called imposed properties (*upādhi*).

Potter has argued that even properties of so-called particulars or individuals may be 'repeatable'. "Part of the problem here is what we should understand by 'repeatable'...to be *repeatable* is to be such it could be present in many at the same time. 'Being Sibajiban', I wish to suggest may be repeatable though not repeated. I am not even sure it is not repeated, since I am not *a priori* convinced of the impossibility of a cyclical theory of time, or of the existence of a mirror universe."[9] Now this argument of Potter raises many questions. (i) The property of being an individual is repeatable only if the individual thing is repeatable in some sense or other. Although the individual may be continuous in time, i.e. may have duration, it is difficult to see how one individual can be repeatable. (ii) To say that an individual which *may be repeated* (is 'repeatable'), but is never, nowhere, under no circumstances, repeated, does not really make sense. So Potter goes on to show how, under what circumstances, an individual may be said to repeat itself. (iii) Potter talks of a cyclical theory of time. Supposing that it makes sense to say that the same individual is incarnated many times in different cycles of creation, even then the property will not be repeatable in the sense of being present in many *at the same time*. Against Potter's argument from the possibility of the existence of a mirror-universe we may point out that the property can be said to be present in many *at the same time* if and only if the universe and the mirror-universe can be said to be in *one time*. But it is not conceptually clear how the original and the mirrored reflection can be said to be in one time. In the case of an object being reflected in a mirror, there is a causal relation between the object and the reflection. In the case of 'a mirror-universe' it does not make sense to take the phrase literally and to suppose a sort of cosmic mirror reflecting the real universe within it. Whatever relation may obtain between this universe and a mirror-universe, it cannot be a causal relation demanding that the two universes

[9]Karl H. Potter, *Proceedings of the Seminar on Universals and Concepts*, February 26-27, 1981, Department of Philosophy, Jadavpur University, p. 23.

be in one time. (iv) The real difficulty is that a universal is repeatable in the sense of being present in all of its *instances*, whereas the individual cannot be regarded as an instance of its property for the relation between different instances of a universal is similarity and difference. One cow is similar in essential respects to another cow but is also different in accidental properties. The only difference between two incarnations of the same object in different cycles of time can be merely temporal or in a mirror-universe also spatial. (It is not clear how one can conceive of the universe and the mirror-universe being in *one* space). (v) That Potter should need the concepts of reincarnation, cyclic time, mirror-universe, to explain in what sense an individual is 'repeatable' (i.e. may be repeated) shows that the concept of a universal is totally different from an individual. One does not need these extravagant cosmological theories or thought experiments to explain how genuine universals are repeatable.

IV. ANALYSIS AND UNIVERSALS

We now consider the problem of complex general terms of a simple type. Take, for example, the complex term 'blue lotus'. Just as 'blue' and 'lotus' are general terms, so is the complex term 'blue lotus'. The question which we want to ask here is: Is there a universal implied by 'blue lotus' which is different from the universals implied by 'blue' and 'lotus'? Occam's razor may be used here to avoid unnecessarily multiplying abstract entities. For a blue lotus may be regarded merely as something which is both blue and is a lotus. But this simplification involves difficulties if *blue* and *lotus* are both regarded as universals, of which the *complex universal* is *composed.* The difficulty here is about the nature of this process of *composition*, which may be brought out by contrasting two different types of complex terms of this sort.

First we have complex terms like 'rational animal' which have simpler forms usually of one word like 'man'. Then 'rational animal' is said to be obtained by *analysing* the simple term 'man'. The sentence 'man is rational' is called an 'analytic sentence'. Secondly, we have complex terms like 'blue lotus' which do not,

as a rule, have simpler designations of single words. We may, of course, have a sentence like 'a blue lotus is blue' and call it 'analytic'. But it is important to note that the word 'analytic' is used in two different senses in the two types of cases. The sentences of the first type are analytic in Kant's sense, the predicate of which is 'covertly contained' in the subject, and a process of analysis is needed to reveal it. But in sentences of the second type the predicate is a part of the subject most palpably, and no process of analysis is needed to bring it to the surface. So sentences of this type, if called analytic, will be analytic without needing any analysis. So complex terms like 'blue lotus' should not be regarded as identical in nature with those like 'rational animal'.

There is a more important difference between these two types of terms. In the case of 'rational animal', 'animal' is wider in denotation than 'rational', whereas this is not so in the case of 'blue lotus', for 'blue' is not wider (or narrower) in denotation than 'lotus'. The class of blue things and that of lotuses intersect or overlap. We shall say, in such cases, that the two universals themselves 'overlap'. The question here is: Can two universals overlap in this sense? The answer to this question depends on what function we want universals to perform. If we want to use universals for classifying things according to their *natural kinds*, then we cannot permit universals to overlap; for overlapping universals will lead to cross classification of objects and this is not permissible. But if we do not want to use universals for *such* classification, then there is no harm in admitting overlapping universals. It is usual here to classify universals (as common properties) into two kinds—(i) sortal universals, and (ii) characterising universals. Sortal universals are used to state what kind of thing a particular object is. Overlapping universals of this kind will put one and the same object into two different natural classes. But overlapping characterising universals do not have this consequence. There is no harm in asserting, for example, the following three sentences:

(a) Socrates is both ugly and wise.
(b) Plato is wise but not ugly.
(c) Smith is ugly, but not wise.

Here although, *ugly* and *wise* are overlapping universals, yet as they are not performing the function of classification according to *natural kind*, there is no logical or ontological difficulty.

Sortal universals are often identified with essences. To say what sort of thing a particular object is, is to say at least a part of its essence; characterising universals are not essences, they are not even properties (in the sense of traditional logic), for properties are like essences, and cannot be overlapping; they can only be accidents which happen to be common to many. A white man cannot be the meeting point of two essences, his colour is not his essence or a property. The essence of a white man is just the essence of man. The white colour is only an accident and is common to all and only those things that are white, white men, snow, milk, etc. So there is no overlap of essences here, only an accident is overlapping with an essence.

If thus there cannot be overlapping essences, one essence can therefore be only wider or narrower than another essence, or completely disjoint from it. Given any two essences, either one will be completely subsumed under the other, or, they will be mutually exclusive. There will be also no point in admitting two essences which have exactly the same instances; that is, there cannot be two co-extensive essences. In such case *any* one of the two will be regarded as the essence.

Now we examine the nature of the two processes of analysis and composition or synthesis which are inverse processes. A complex essence can be analysed into simpler essences, and two or more simpler essences can be synthesised into a more complex essence. But the processes, therefore, involve complex essences either as starting points or as results. Yet the nature of complex essences is not clear. The standard procedure of defining a term *per genus et differentiam* involves the difficulty of understanding the meaning of *et*. How animality and rationality are interrelated to form the complex universal of humanity poses a problem. Baumgarten suggested 'transcendental' to characterise this relation.* But his explanation of this technical term is not clear. There are difficulties in logically characterising it. For example, we may ask whether animality and rationality are accidentally or necessarily related in humanity. Their interrelation cannot be accidental. For in that case, they will fail to form *one* essence,

*Due to Professor J. N. Mohanty.

humanity, but will be a loose and unstable complex. There cannot be any *reason* for their interrelation if it is accidental. If, on the other hand, their relation is conceived to be necessary, then there must be something in the very nature of two essences (animality and rationality, for example) which makes them necessarily united to form the new essence, humanity. The difficulty in this theory is to explain how two essences which are self-complete can also demand to be related to each other. This difficulty comes to the surface when one attempts to explain how the same generic property can be necessarily related with different and mutually exclusive differentia to form mutually exclusive essences of co-ordinate species of the same genus. Discussing this problem, H. W. B. Joseph, for example, comes to this conclusion: 'We may say that the genus and the differentia are one, because they were never really two .... the genus therefore could never exist independently of a differentia .... nor the differentia of the genus'.[10] But this deprives both animality and rationality of their essentiality, for no essence can be dependent for its existence on something else. Moreover, in thus emphasising the necessity of this interrelation of genus and differentia, Joseph virtually denies that the genus is one essence. 'So intimately one are the differentia and the genus that though we refer different species to the same genus, yet the genus is not quite the same in each; it is only by abstraction, by ignoring differences, that we can call it the same'.[11] Thus if we hold that animality and rationality are necessarily interrelated in humanity, we have different animalities for the different essences of cat, dog, and the other co-ordinate species. Hence animality is not an essence.

Pursuing this line of argument one reaches the conclusion that essences cannot be complex, in the sense of being constituted by more than one essence. If there *are* essences, then each of them must be one indivisible unity not merely in existence but also in knowledge. This leads to the position that essences can never be *analysed*, they are all necessarily unanalysable simple entities; in other words, conceptual analysis of essences into simpler essences is impossible. This applies only to essences or sortal universals, but not to characterising universals. There is

[10]H. W. B. Joseph, *An Introduction to Logic*, p. 83.
[11]*Ibid.*, p. 83.

no harm in admitting complex or composite characterising universals which can be analysed into simpler elements.

It is interesting to note that there is an aspect of Wittgenstein's theory which can be interpreted in support of this theory. According to him, which is common to all games is that they are games; no further analysis of any essence of games is possible. Champions of conceptual analysis as the method of philosophy find this position wholly unacceptable. A. J. Ayer, for example, complains, 'It is correct, though not at all enlightening, to say that what games have in common is their being games'.[12] Enlightenment, if sought by further analysis, is not possible from the very nature of the case.

It is, of course, true that Wittgenstein intended his argument to be used not against the theory of analysability of essences, but against the postulation of essences, still this need not be the case. For, as Bambrough interprets Wittgenstein, he was arguing against the essentialists only because they meant by 'something common' 'something common *other than* being its instances' in answering the question: Must there be something common to all instances of a universal in order that they be denoted by one general term ?[13] But this extravagance of the essentialists is not necessary. For, as we have stated before, the common property implied by a general term is referred to by the corresponding abstract term; and the abstract term corresponding to 'games' is only 'being games', to 'wise', 'wisdom', which is available, 'being wise' is regarded as only a grammatical variant. Thus Strawson, for example, writes, "Let us say that the expression 'Socrates' serves to introduce the particular person, Socrates, into the remark, and the expression 'is wise' serves to introduce the quality wisdom, into the remark".[14] He also says, "It is different with 'is wise'. This expression introduces being wise just as 'Socrates' introduces Socrates".[15] Thus wisdom or being wise are the same, being introduced by the same expression 'is wise' into the remark. Now where an abstract noun corresponding to

[12]Quoted in 13, p. 195.

[13]R. Bambrough, 'Universal and Family Resemblances', in *Wittgenstein*, ed. G. Pitcher, p. 198. 1968.

[14]P. F. Strawson, *Individuals*, p. 146.

[15]*Ibid.*, p. 149.

a general term is not available, as in the case of 'games', 'being games' is the only abstract term. Abstract nouns where available, mean only 'the property of *being so-and-so* or *such-and-such*'.

Although 'wisdom' and 'being wise' are both abstract terms formed from the general term 'wise', yet there is some difference between the two. 'Wisdom' denotes the property as abstracted from its relation to things which may possess it; 'being wise' on the other hand, includes the relation as abstracted from the things to which wisdom is related. That is why we have 'Socrates being wise' as a proposition in Johnson's sense—an assertible containing the characterising tie; but we do not have 'Socrates wisdom' as 'wisdom' does not denote any tie or relation, but only the abstract property. But inspite of this difference, *being wise* and *wisdom* as abstract properties, are analysable or unanalysable in the same way.

Thus there are abstract terms of three different kinds: (i) abstract terms, like 'marriage', which do not denote repeatable properties; (ii) abstract terms which denote analysable common properties like wisdom; only general terms corresponding to such abstract terms can be overlapping; and (iii) abstract terms which denote unanalysable common properties (essences) like humanity.

About the problem of the relation between universals and particulars it is to be noted that there are various aspects to this relation—ontological, logical, semantical, epistemological. As we have introduced the problem of universals as a problem of meaning of general concrete terms, our approach is primarily semantical and epistemological. We have also discussed the nature of abstract terms and their meaning, and the logical problem of complex essences and their analysability. We now conclude by remarking very briefly on the ontological aspect of the relation.

The question whether universals are *in* particulars arises only if both universals and particulars are regarded as real; if particulars are regarded as shadows or copies or appearances, then their relation to the corresponding universals will be a relation between shadows and real things, between copies and original or between appearance and reality. Although these relations differ among themselves considerably, still it is clear that there cannot

be any ontologically real relation between them, for a real relation can hold only between or among reals.

So also if universals are regarded as concepts or ideas or as somehow being subjective, and particulars as real, then there also cannot be any real relation between them. If again universals are regarded as mere words, then the relation will be between arbitrary conventions behind the use of general words and the real world which is not arbitrary. In this case, too, it is clear that universals and particulars cannot have any real relation between them. All that our approach has shown is that universals being reasons for the application of general terms, must be epistemologically prior to particulars.

V. ASPECTS OF UNIVERSALS

The Navya-Nyāya Theory of Universals has different aspects —ontological, logical, epistemological. We shall now explain these three different aspects.

1. *Ontological Aspects of Universals*

According to Navya-Nyāya, a universal is an eternal entity. Although it inheres in all its instances whenever they exist, still the instances in general are not eternal. Thus in the case of universals like cow-ness, the universal is eternal whereas individual cows are obviously non-eternal. Some Navya-Nyāya philosophers admit the possibility of total dissolution of the universe when no created objects exist including cows. Thus there are times when there are no individual cows, yet cow-ness, being eternal, remains unchanged and unmodified even by the absence of all its instances. The relation between a universal and its instances, is, itself eternal—inherence being regarded as an eternal entity—the instances are non-eternal. Thus we have the following situation:

uRi where u is eternal, R is eternal, only i's are not eternal.

The question, therefore, arises how a universal can *be* in the absence of all its instances. The Navya-Nyāya answer to this question is that a universal inheres in all its instances so long as they exist. It is, therefore, not necessarily true that universal cannot exist except in its instances. There can be no unrealis-

able universal in the sense that it did not inhere in any of its instances in the past, does not inhere now in its instances, or will not inhere in future instances. In other words, non-eternal instances of universals are either past instances or present instances or future instances. Every universal has to inhere in all its instances whenever and wherever they are available. There can be no universals whose instances are impossible. On the other hand, many universals will exist without any instance existing, as for example, during the time of total dissolution. The universals during such a period of time exist only in time, are related to time by the temporal relation (*kālikasambandha*).

2. *Epistemological Aspects of Universals*

Although universals are ontologically eternal entities, yet for being known they have to be present in instances. The instances *manifest*, *reveal* the universals. Without the particular instances no universal can be manifested i.e. can be *perceived.* When a universal exists in time, when all its instances are destroyed, they cannot be objects of perception.

According to Navya-Nyāya, universals inhering in observable instances are themselves observable. Universals residing in unobservable instances, such as universals of atoms, cannot be objects of perception. They can be known only by inference. So also universals existing in time when all instances are destroyed can be known to exist even then only by inference.

There is another peculiarity of universals as objects of knowledge. A particular has to be known always under a mode which is, at the last resort, a universal. A universal, however, is cognized in itself (*svarūpataḥ*) not needing any mode of cognition. This means that a universal is self-revealing whereas all particulars are cognized *only as* instances of a universal.

There is, however, an important point to be noted in this connection. Universals may become objects of cognition in two different ways—when they are *mentioned* (*ullikhita*) or when they are *not mentioned* (*anullikhita*). Mentioning a universal is *to refer to it* by a name of the universal which is grammatically an abstract term. When a universal is mentioned in this sense, i.e., is referred to by an abstract term, then the universal is cognized under a mode of a second-order abstract property which cannot,

however, be a universal. It is only when a universal is not so mentioned that it is cognized in and through itself, not under a mode of any other property. Thus universals are epistemologically prior objects, for particulars are known only as instances of universals which are self-revealing.

3. *Logical Aspects of Universals*

The logical features of universals are essentially connected with their ontological reality. A universal is what is common to many, i.e., to all and only its instances. Yet whatever is common to many is not a universal. There are six features which prevent a common property from being a universal.

VI. NAVYA-NYĀYA DEFINITION OF UNIVERSALS

A universal is that which being eternal inheres in many.

The difficulty of understanding this definition stems from that of understanding the meaning of 'many', for, according to Navya-Nyāya, there are no 'many things' over and above each thing which is not many. The term for 'many' is 'not-one', i.e. 'different from one'. As oneness is a global property the difficulty here is in understanding plurality or manyness, i.e., difference from one-ness.

The first solution is based on the Navya-Nyāya theory of *paryāpti* relation and *vyāsajyavṛtti* properties. Here one-ness is a number, and therefore belongs to an object by *paryāpti* relation. The object to which one-ness belongs is the locus of one-ness by *paryāpti.* The limitor of locusness resident in this object is one-ness. Both-ness being a *vyāsajyavṛtti* property belongs to two things, but not to each of the two things which are its locus. Thus the two things taken together are the locus of bothness which is the limitor of this locusness. Thus bothness is not the limitor of the locusness of one-ness which belongs to each thing taken separately. In this locus of bothness there will be difference of one-ness, for both will not be one, will be different from one.

But there is a difficulty in this solution. Locusness limited by bothness is resident in both the objects where difference of one-ness is said to reside. But one-ness resides in each of the two objects which constitute the locus of bothness. Now some Navya-

Nyāya philosophers accept the rule that the locus of *vyāsajyavṛtti* properties cannot be the locus of difference of any property which resides partly in the locus. As one-ness resides in each object, it resides in parts of the locus of bothness. So the rule stipulates that there cannot be any difference of one-ness resident in this locus.

The reply to this objection is simply to deny the validity of this rule. It is corroborated by everyone's experience that two are not one. So also even though smell belongs to earth, it does not belong to both earth and water, because it does not belong to water.

Objection to reply: Let it be granted that both are the locus of difference of one-ness, i.e., both are different from one. But because Navya-Nyāya does not ascribe any ontological status to collections, both objects are ontologically single objects. In Navya-Nyāya terminology both are not something over and above (*atirikta*) each. So what is present in each, will have to be present in both, for example, colour present in each of two water atoms, will also be present in both atoms. So the rule that what belongs to one does not belong to both is invalid.

This point may be explained as follows. The Navya-Nyāya philosophers who accept the validity of the rule gives examples of negation of both. This negation is true only in the following three cases, where A and B are the properties concerned.

(i) Where A is present but B is absent there is negation of both A and B.

(ii) Where B is present but A is absent there is negation of both A and B.

(iii) Where A is absent and B is absent, there is negation of both A and B.

Now the objection is that one possibility is left out here, namely.

(iv) Where A is present and B is also present.

In such a case we cannot say that there is negation of both A and B.

The point is that if both A and B could be something over and above the two separately, then even if A and B were severally present, we could have said that both are not present or that both are not one. But as Navya-Nyāya does not admit a separate

ontological reality of both over and above the two separately and individually, it is difficult to see in what way both are different from each.

The solution of this difficulty as suggested by Dinakara is that the term 'not-one' means that which has a number other than unity, as there are infinite numbers other than one. It is not difficult to make sense of things other than one i.e., many things, as things possessing any number other than one. So a universal is that which inheres in many objects, i.e. objects which are more than one in number.

CHAPTER 4

THE NAVYA-NYĀYA THEORY OF ABSTRACTION

Navya-Nyāya uses abstracts, often of higher orders, for various purposes. We shall explain here, (1) the Navya-Nyāya technique of forming abstracts, (2) their meaning, (3) abstracts of compound words, (4) higher order abstracts, their meaning, reasons for admitting them, and their ontological status.

I. THE NAVYA-NYĀYA TECHNIQUE OF FORMING ABSTRACTS

Ordinarily, in natural languages as also in Sanskrit, abstract nouns are formed from concrete terms (common nouns, adjectives, verbs) and concrete terms are formed from abstract terms. Thus given the concrete terms

man, black, wise, move

we form the abstract terms

humanity, blackness, wisdom, movement

by adding various abstraction suffixes to the given concrete terms with grammatical changes in them where necessary.

In the technical language of Navya-Nyāya, as also in Indian philosophy in general, one suffix'-tva' (or its grammatical variant'—tā') is uniformly used to form abstract terms from nouns and adjectives. We shall translate this suffix as '—ness'. Thus we shall use

man-ness, black-ness, wise-ness.

Similarly, from the given abstract terms

beauty, health, anger

we form the concrete terms

beautiful, healthy, angry.

Navya-Nyāyas uses as the concretization suffix '—vat' (or its grammatical variant '—mat') which we shall translate as '—possessing'. So we shall have

beauty-possessing, health-possessing, anger-possessing

In ordinary language we cannot generally form an abstract term from an abstract term, or a concrete term from a concrete term. Navya-Nyāya, however, forms abstract and concrete terms from *any* term. This involves construction of higher order abstract and concrete terms. In languages like English second-order concrete terms are formed and used more often than second-order abstract terms. Thus from

tear, blue eye

we have second order concrete terms

tearful, blue-eyed,

which we shall translate as

tear-possessing, (blue eye)-possessing.

Abstraction and concretization are inverse processes. If we form a concrete term from an abstract term, and then form an abstract term again from this concrete term we get back the original abstract term. Thus 'health-ful-ness' is just 'health'—the property of what has health as its property. Yet in ordinary language in order to justify this circumlocutation a difference in meaning is usually implied; thus 'healthfulness' and 'health' need not mean exactly the same thing. In the technical language of mathematics and logic, as of Navya-Nyāya, no difference in meaning is implied. So we have the following two rules of inverses:

Inv. 1. (t—tva)—vat = t; (t-ness)—possessing = t)
Inv. 2. (t—vat)—tva = t; (t-possessing)—ness = t),

where *t* is *any term.*

It will be interesting to compare and contrast this Navya-Nyāya technique of forming abstract terms with the techniques of contemporary logic. Usually three methods are used in different systems of logic.

Method A. In this method an abstract term is formed from a sentence. Thus from 'Mars contains life'

we have the abstract

(Mars/[Mars contains life])

which means 'the attribute of containing life.[1]

Method B. In this method an abstract term is formed from a sentential function; thus we get the same attribute from 'x contains life'

[1]F. B. Fitch, *Symbolic Logic*, p. 94.

by prefixing the λ-operator

(λx) (x contains life).

In this type of logic containing variables, the abstraction operator must *bind* the relevant variable, which has the effect of deleting the variable from the expression which becomes an abstract term. Hence we have the following identity:[2]

$$(\lambda x)\, Fx = F$$

Method C. This method is to use the lambda operator to form an abstract term from a term. Usually it is a term denoting the value of a function for an indefinite argument, *x*, thus: $(\lambda x)\, fx = f$. Suppes, for example, gives the general formulation of abstraction (with respect to *V*) thus:

If *v* is any variable and ψ is any term, then $(\lambda v)\,(\psi)$ designates the function whose value for $x \in v$ is designated by the result of substituting a symbol designating *x* for *v* in ψ.[3]

Thus although the Navya-Nyāya technique of forming abstract terms from terms is similar in this respect to *Method C*, yet this similarity is only superficial. According to Navya-Nyāya concrete terms designate objects *possessing* attributes or properties. Now 'possessing' stands for different relations in different contexts. Thus the two terms 'healthy' and 'wealthy' are similar in grammatical structure, yet when translated in the Navya-Nyāya terminology, they mean entirely different types of relations. The corresponding Navya-Nyāya terms 'health-possessing' and 'wealth-possessing' when fully expanded, reveal the difference in meaning. A health-possessing person is a person who *enjoys* good health, a wealth-possessing person is a person who is the *legal owner* of wealth. Thus 'wealth-possessing' denotes a person who has to be related to wealth by the relation of legal ownership. We may, therefore, say that

(λx) (*x* is the legal owner of wealth)

is the same property as (*wealth-possessing*)-*ness*. Yet the Navya-Nyāya technique is different from this *Method B*, because of a peculiarity of the Navya-Nyāya concept of relation. A dyadic relational expression in Western logic is a dyadic predicate which

[2]Rudolf Carnap, *Introduction to Symbolic Logic*, p. 133.

[3]Patrick Suppes, *Introduction to Logic*, p. 243.

forms a sentence from two names, but according to Navya-Nyāya it forms a *compound term*. Thus '*aRb*' is not the sentence '*a* is related to *b* by R', but is the compound term '*a as b* by R'. As a matter of fact, all expressions which are sentences grammatically, are interpreted, in Navya-Nyāya, as compound terms, meaning *qualified objects*, i.e. something *as* something. The difference in meaning between a single word and a grammatical sentence is only a matter of degree of complexity of the qualifiedness of the object. 'Wealth-possessing' refers to anyone who is presented under the mode of legal ownership of wealth, but is *otherwise* not known. But to say that a merchant (is) wealth-possessing is to have an individual presented first under the mode of being a merchant, and then, again, under the mode of legal ownership of wealth. This difference may be explained by the difference between

$$(\in x)(\mathrm{W}\,x) \text{ and } (\in x)(\mathrm{M}x\,.\,\mathrm{W}x)$$

where '$\in$' is Hilbert's epsilon-operator.

II. MEANING OF ABSTRACT TERMS

We begin with a quotation from Mill:

> A concrete name is a name which stands for a thing; an abstract name which stands for an attribute of a thing . . . . It may be objected to our definition of an abstract name, that not only the names which we have called abstract, but adjectives, which we have placed in the concrete class, are names of attributes; that *white*, for example, is as much the name of the colour as *whiteness* is . . . [But] when we say snow is white, milk is white, linen is white, we do not mean it to be understood that snow or linen or milk is a colour. We mean that they are things having colour. The reverse is the case with the word whiteness; what we affirm to *be* whiteness is not snow, but the colour of snow. Whiteness, therefore, is the name of the colour exclusively: white is the name of all things whatever having the colour . . . . It is true that this name was given to all those various objects on account of the quality . . . . [4]

Thus according to Mill a term like 'whiteness' means (is a

[4] J. S. Mill, *A System of Logic*, p. 17ff.

name of) the colour *exclusively*. It is obvious that this colour does not exist independently of the things which have this colour. Thus from the point of view of existence the quality is dependent on the thing. Yet this does not mean that the quality is, therefore, subjective; what is objectively real is the thing having the quality, i.e. the thing-with-the-quality. So far as the application of the concrete term 'white' is concerned, Mill holds it is applied to white objects 'on account of' the quality, i.e. that the *reason for application* of this word to whatever it applies is the colour, whiteness. Thus there are two different, and to some extent opposite, types of considerations—existential and semantic. Existentially it is the thing which is primary, but semantically it is the quality which is primary.

To explain how an abstract term can apply to a quality exclusively we have to assume that the object on which the quality is existentially dependent and from which it cannot be ontologically separated, has to be *ignored semantically*, left out of the sphere of reference of the abstract term. This may be regarded as the meaning of 'abstraction', the process involved in the construction of abstract terms from concrete terms. This does not mean that there is an ontological separation of the quality from whatever things may possess it. To explain to what a term refers it is not necessary to postulate that its referents have reality separated, as opposed to epistemologically distinguished, from all other objects; what is necessary is to assume that we can attend to, can cognize, this aspect of a complex entity which may, and does, have many other aspects.

The techniques of abstraction adopted by Western logicians involve merely deletion of variables or even names from sentential functions, or sentences and terms. This merely linguistic procedure has, of course, its semantic counterpart, for we can always ask what such abstract terms mean. Fitch, for example, says, "Let *p* be any proposition and let *a* be something mentioned by the proposition *p*. Then there is some attribute which *p* assigns to *a*. We will designate this attribute by the notation (*a*/*p*)'.[5]

According to Navya-Nyāya, the attribute (we shall use 'property' instead of 'attribute') which an abstract term designates

[5]Fitch, *loc. cit.*, p. 94.

is the attribute which is the sufficient condition for application of the corresponding concrete term to its referents. Thus whiteness designated by 'whiteness', is the reason for applying the concrete term 'white' to whatever it applies. Navya-Nyāya philosophers also hold that the abstract property designated by the abstract term formed from a concrete term is the *being-so-and-so* (*bhāva*) of the referents of the concrete term. Thus wise-ness (wisdom) is *being wise* and so on. Thus here, too, there are two sorts of considerations—ontological and semantic. 'Wise-ness' refers to a property by virtue of which the wise *are* wise. This fact is the reason why this property is *the sufficient reason* for application of the word 'wise' to all and only those who *are* wise.

III. ABSTRACTS OF COMPOUND WORDS

We have already stated that Navya-Nyāya does not distinguish between sentences and compound words. Hence abstracts formed from compound words will correspond to abstracts from sentences in Western logic. According to Yajñapati Upādhyāya, an outstanding Navya-Nyāya philosopher (circa, 1450 A. D.), there is difference in meaning between abstracts of simple, non-compound terms and abstracts of compound terms. Moreover, according to him, compound terms formed in different ways may yield abstracts which may be syntactically similar, yet their meanings are different. For example, we may form two different compound words from the simple words, 'blue' and 'lotus' —(i) 'a blue-lotus' (*nīlotpalam*), (ii) blue-and-lotus (*nīlotpale*), where (i) is the result of noun-adjective compound (*karmadhāraya samāsa*), and (ii) of noun-noun compound (*dvandva samāsa*). Although these terms are syntactically different—(i) being in singular number, while (ii) in dual number—still the abstract terms formed from them have the same syntactical form—'(blue-lotus)-ness' (*nīlotpalatvam*). Yajñapati argues that in spite of this syntactical identity, the abstract terms have to be interpreted differently to mean different things in the two cases. The difference between (i) and (ii) may be explained thus:

(i) $(\in x)(Bx \,.\, Lx)$ (ii) $(\in x)(Bx) \,.\, (\in x)(Lx)$

The corresponding abstract terms will be

(i*) (λ x) (Bx . Lx) and (ii*) (λ x) (Bx) . (λ x) (Lx).

Now (1*) cannot be identified with

(i**) B & L [using the identity (λ x) (Fx) = F)]

for then (ii*) also will be the same

(ii**) B & L,

and the difference between (i) and (ii) will be lost.

According to Yajñapati, '(blue-lotus)-ness' will mean in the case (i) *the co-presence* of blue-ness (blue colour) and lotus-ness, i.e. blue-ness must belong to that to which lotus-ness belongs. This follows from the fact that in (i*) the two occurrences of 'x' in '(Bx . Lx)' are within the scope of the single abstraction operator, showing that the two occurrences of 'x' within its scope must have the same value, whereas different values are permissible,—and according to Sanskrit grammar, necessary—for them in (ii*). Yajñapati's theory of co-presence of blue-ness with lotus-ness, or conversely, co-presence of lotus-ness with blue-ness, brings out this feature of (i*).

For, (i*) must be applied to one value

(i***) [(λ x) (Bx . Lx) (a)] $\equiv$ (Ba . La)

(ii*) to two values

(ii***) [(λ x) (Bx) (a) . (λ x) (L x) (b)] $\equiv$ (Ba . Lb).

where, according to Sanskrit grammar, *a* must be different from *b*.

Thus Yajñapati's point is that '(λ x) (Bx . Lx)' will mean something more than '(λ x) (Bx)' and '(λ x) (L x)' separately—B and L (blue-ness) and (lotus-ness) must *also* belong to one and the same object.

IV. HIGHER ORDER ABSTRACTS

We have already stated that according to Navya-Nyāya we can form an abstract term or a concrete term, as we please from *any* given term. Thus if *t* be any term, then we may form the abstract term, 't-ness', or the concrete term 't-possessing'. Again from the first order abstract 't-ness', we may form a higher order abstract '(t-ness)-ness'. So also from the first order concrete term 't-possessing' we may form the second order concrete term '(t-possessing)-possessing'. The problem, here is to explain

the meaning of higher order abstract and concrete terms, and the Navya-Nyāya reasons for admitting them.

We have already seen that in a natural language like English we often have second-order concrete terms like 'blue-eyed', although the corresponding higher order abstract terms are rarely, if at all, formed. Yet a second order concrete term logically implies a second-order abstract term. Thus from 'blue-eyed' we get the first order abstract 'blue-eyed-ness' which is just 'blue eye'. '(λ x) (x is blue-eyed)' is 'blue eye'. From this first order abstract we may get the second-order abstract 'blue-eye-ness' i.e. '(λ x) (x is a blue eye)', which according to Yajña-pati means the co-presence of blueness and the property, *being an eye*. Navya-Nyāya, however, has the *general* problem of explaining the meaning of, and need for, higher order abstract and concrete terms. We shall explain the Navya-Nyāya theory by distinguishing between different types of cases.

Case 1. This is the case of abstract terms formed from adjectives of colour, taste, etc. Taking Mill's example of 'whiteness' as an abstract term formed from the adjective 'white' we can explain why Navya-Nyāya forms higher order abstracts. According to Navya-Nyāya although the adjective 'white' denotes all things which are white, still 'whiteness' does not denote a single property present in all white things. The theory is that the colour of a particular object belongs to it and is causally dependent upon it. Thus colours, like tastes, sounds, etc. are all as particulars as the things to which they belong. According to Navya-Nyāya, colours etc. are qualities of substances; and the distinction between substance and quality is not the same as that between a particular and a universal. Whitenesses belonging to different white objects may, and do, have something common to them all, which is a universal of the white colours. The different white colours are the instances of the universal of whitness. Thus according to Nyāya, the first order abstract term 'whiteness' denotes innumerable particular qualities and the second order abstract term 'whiteness-ness' denotes the universal of which the particular white colours are the instances. This shows that according to Nyāya an abstract term which denotes a quality or a property 'exclusively' (as Mill says) does not necessarily denote a uni-

versal. A universal can be denoted only by a second order abstract term in such cases.

Case 2. This is the case of *general terms* from which second order abstracts are formed. Take, for example, the word 'cow' from which we form the first-order abstract 'cow-ness' which designates the universal which inheres in all and only cows. Thus cowness *is* that which inheres in all and only cows; therefore, cowness *has* the property—inhering in all and only cows. And *this is* the property of cowness, which the second-order abstract '(cowness)-ness' designates. Thus (cow-ness)-ness *is* the property— inherence in all and only cows.

Now, comparing the two abstract terms, 'cow-ness' and '(cow-ness)-ness' we find they designate objects which are very different ontologically. Cow-ness is a simple property inhering in all and only cows. It is a simple, unanalysable, repeatable property which collects all and only cows into one class. But (cow-ness)-ness, although an abstract property of cowness, is itself not a single unanalysable property which can collect different individuals into one class. For one thing, (cow-ness)-ness is the property of a single abstract entity, cow-ness, and hence, by the very nature of the case, cannot be present in many. For another, (cow-ness)-ness is not an unanalysable property, involving as it does a relation (inherence) and its terms. Thirdly, while cow-ness is a *light property* (*laghu dharma*), (cow-ness)-ness is a *heavy property* (*guru dharma*) for (cow-ness)-ness involves reference to all individual cows which are the second term of the relation of inherence, and (cow-ness)-ness is identified with the property of being the first term of this relation. Using Fitch's notation, we may represent this second-order abstract term as '(cowness/[cowness inheres in all and only cows])' which denotes the property of being the first term of the inherence. (As the Nyāya concept of *samavāya* is the converse of inherence, (cow-ness)-ness is the property-of-being-the-second-term-of-*samavāya*, *samaveta-tva*, (in all and only cows). Fourthly, it is clear that (cow-ness)-ness, being conceptually heavy and, hence, analysable, cannot be an eternal entity. No composite object can be eternal according to Nyāya.

For these reasons Navya-Nyāya does not regard (cow-ness)-ness as an ontological entity of a different sort. It has, there-

fore, to be reduced to other types of reals admitted by Navya-Nyāya. As a matter of fact (cow-ness)-ness is identified ontologically with the physical form of individual cows, which differs from individual to individual. According to Navya-Nyāya the physical form of an individual cow is the arrangement of its limbs—a quality inhering in the limbs of the cow, and is, hence, as particular as the cow itself. Thus the formation of higher order abstracts does not lead to an infinite progression of abstract properties in ontology.

Case 3. It is necessary to keep in mind the Navya-Nyāya theory of abstract terms formed from proper names, and names of single ontological entities like space and time. Abstract terms formed from such terms, 'space-ness', 'time-ness', cannot, from the nature of the case, designate a property common to many, and therefore, cannot be a universal according to Navya-Nyāya. What, then, is the ontological status of these entities? According to Navya-Nyāya, these abstract properties are ontologically identical with the objects designated by 'space', 'time', etc. In such cases, the abstract properties—*being space, being time*, are ontologically the same as space and time. It is only in epistemology and semantics that the distinction between space and space-ness, time and time-ness, is made. It is a fundamental theory of Navya-Nyāya that one and the same ontological entity can function as two different terms in the cognition of the entity. Every determinate cognition must have a qualificandum, a qualifier and qualification-relation as elements in the structure cognised. Yet corresponding to the three elements of the cognised structure there need not be three different elements in ontology. In the extreme case, one single ontological reality may function, in the cognised structure, as both the terms and also their relation. Thus in the cognition 'this (jar) is identical with itself', the identity relation as well as its two terms are ontologically identical with a single object, this jar. Even though the cognised structure does not have on-to-one correspondence with what there is, still, in such cases, the cognition is not false, for everything has the property of self-identity. Relations as well as properties are, according to Navya-Nyāya, elements in cognised structures, but need not be, for that reason, ontological reals.

How this is possible without falsifying the cognition may be explained by the following diagram:

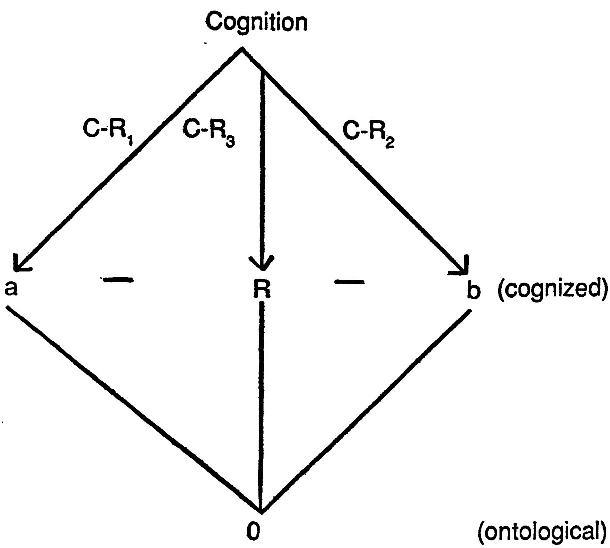
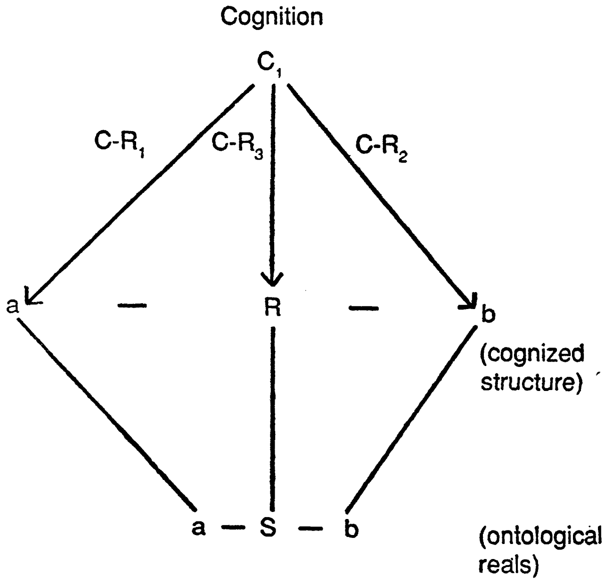


Fig 1

According to Navya-Nyāya, one cognition which is a conscious state, is related by three different characteristic relations, C-R_1, C-R_2 and C-R_3; and, in extreme cases like self-identity, there is one single ontological real to which the cognition bears all these three relations. So, o (the ontological reality), as the second term of C-R_1, is the qualificandum of the cognition 'o is identical with o'; as the second term of C-R_3, is the qualification-relation, identity; and as the second term of C-R_2, is the qualifier, while the first term of all these three relations is the cognition. Thus one cognition being related to one ontological real in three different ways is *of* a related structure, *a-R-b*. Thus such a cognition is not false, for the cognition *is* related in three ways to the real which therefore is cognised as a relational whole. A cognition is false if the cognition is related to elements which are not *so* related really. False cognitions may be explained by the following diagram:



When in reality *a* is not related by *R* to *b*, but is cognised as such, then the cognition is false.

Case 4. Now we come to a different type of case, i.e. abstract terms formed from relation words and relative terms. Take, for example, the abstract term 'objecthood'. In Western philosophy the term 'object' is correlative of 'subject', but in Navya-Nyāya 'object' is correlative of 'cognition'. An object is an object of a cognition. Thus the abstract term 'objecthood' may be expressed in symbols thus:

OB.S. (λx) (x is an object of a cognition of x)
which is the property of being an object of its own cognition.

Now the question is about the ontological status of such a relative property. According to Navya-Nyāya such relative properties are regarded as relations of a special type, called *svarūpa sambandha*. We have already explained how Navya-Nyāya forms such a relation by abstraction on the predecessor of a relation. Thus the property 'objecthood' is really a relation with the object as the predecessor and its cognition as the successor. Thus objecthood is the relation *of* the cognition *to* (in) the object. This

relation being a *svarūpa sambandha* is ontologically identical with one or the other of its terms. The usual Navya-Nyāya theory is to identify objecthood with its successor, the cognition. It is the very nature of cognition to be related to, to refer to, to be *of*, its object. Ontologically, there is no reality *between* object and cognition which serves as their relation. Yet the expressions, 'cognition *of* an object' and 'an object *of* a cognition' unmistakably indicate a relation between an object and cognition. Navya-Nyāya uses the concept of *svarūpa sambandha* to justify a sort of reductionism in ontology. But this leads to the consequence that objecthood of a particular cognition is ontologically identical with a particular object of that cognition, and will vary from object to object and also from cognition to cognition. Thus if a particular jar be the object of a particular cognition at a particular time, the objecthood will be identified ontologically with that particular cognition. But if the same jar be cognised again, the objecthood of *this* cognition will be different from the objecthood of the earlier cognition, because the cognitions are different ontologically as different cognition-particulars. So also a cognition of a jar is different ontologically from a cognition of a piece of cloth, and hence objecthoods of these two objects are ontologically different. As a *svarūpa sambandha* is ontologically a term which is also the relation, it will be a particular when this term is a particular, and a universal when it is a universal. Thus although all *svarūpa sambandhas* are expressed in language by abstract terms formed from the predecessor of the relational expression, still such abstract terms do not necessarily mean universals.

Higher-order abstracts are necessary in Navya-Nyāya to explain the meaning of first-order abstract terms. According to the Navya-Nyāya theory of meaning, a word presents an object only under a specific mode of presentation. This mode of presentation must be the property *being that object.* Thus a general term like 'man' presents individual man under the specific mode of *being a man,* i.e. humanity. Now when we use the word 'humanity' this word must also present its object, humanity, under a specific mode which is *being humanity* or humanity-ness. Now if we use the term 'humanity-ness', this also presents its object humanity-ness under a specific mode which is *being humanity-ness,* i.e. (humanity-ness)-ness, and so on. Thus there is a progression of

abstract terms of higher and higher orders. In ontology, however, sometimes abstract terms designate real entities different from those designated by the term from which the abstract term is composed by the addition of the abstraction-suffix—i.e. the arguments of the abstraction operator. But in other cases the entities meant by the abstract terms are ontologically identical with the entities meant by their arguments.

The main stream of Navya-Nyāya philosophers admit, in their ontology universals as reals, although they impose rather restrictive conditions on abstract properties for being admitted as universals. Those abstract properties which fail to satisfy these conditions are identified, by various methods, with entities already admitted in the ontology. This admission of 'genuine' universals as ontologically real abstract properties marks these philosophers off from the Buddhist nominalists. But the main stream of Navya-Nyāya philosophers accept nominalism in the case of a rather large number of abstracts which do not fulfil the condititions of being universals. Thus the main stream of Navya-Nyāya philosophers attempts a sort of compromise between extreme nominalism of the Buddhists and the extreme realism of a section of Navya-Nyāya philosophers.

This section of Nyāya philosophers advocates an uncompromising realism in ontology. Raghunātha, for example, suggests the alternative of regarding abstract properties like *being the first term of a relation* (*anuyogitā*), *being the second term of a relation* (*pratiyogitā*) as separate ontological entities. Raghunātha could make this suggestion because Nyāya, whether old or new, is essentially a logic and an epistemology leaving its ontology quite open. According to Nyāya philosophers, logic and epistemology can be developed independently of ontological questions which are primarily the concern of the allied school of Vaiśeṣika which is often taken to supplement the Nyāya theories of logic and epistemology.

CHAPTER 5

THE NAVYA-NYĀYA THEORY OF DEFINITION

I. INTRODUCTION

A theory of definition is very important for Navya-Nyāya for it uses definitions extensively in ontology, epistemology, logic, psychology, etc. Framing and using definitions extensively distinguish Navya-Nyāya not merely from other schools of Indian philosophy but also from older Nyāya. We shall explain here some features of this theory of definition.

At the outset it must be emphasised that definitions in Indian philosophy in general and Navya-Nyāya in particular are conceived very differently from the definitions in Western philosophy. In Western philosophy and logic it is usual to define a term or a linguistic expression. Definition in this sense explicates the meaning of the expression. In modern Western logic, however, definitions do not explicate the meanings of the terms defined but are mere abbreviations. In India, definitions in the sense of abbreviations were regularly used in grammar from the earliest times, as in *Pāṇini*. In Indian philosophy, however, definitions are not conceived as abbreviations. To start with, there are objects collected by some common features which may or may not be independent ontological realities, *jātis* in the sense of Nyāya. These common features are again conceived as modes under which the objects to be collected are cognised. Then there is the process of finding *another set* of features, properties, of marks, which are present in all and only those objects which have been previously collected together in a class as cognised under some mode. The process of finding these properties or marks is called defining in Nyāya. As this concept of definition is completely different from the Western concept, I shall use 'define*', 'definition*', etc. (with an asterisk) to distinguish the Navya-Nyāya concepts from the Western concepts.[1]

[1]Kisor Kumar Chakravarti uses single quotes where I use asterik (A compa-

Thus in the Navya-Nyāya theory of definition*, there are two stages—(i) there must be objects to be defined* which must all be cognised under one mode; (ii) the definition* of these objects is a property co-extensive with this mode of objects, and which is called 'a defining* mark' of these objects. The mode under which the objects to be defined* are cognised is called 'the limitor of (the property) of being the objects to be defined*' (*lakṣyatā-vacchedaka*). The defining* marks are called *definitions** (*lakṣaṇa*).

Now the set of properties under the mode of which the objects to be defined* are cognised must be, for that very reason, present in all and only those objects. The definition*, too, must be a set of properties present in all and only the objects to be defined*. Thus these two properties must be co-extensive. Yet the first set of properties cannot constitute the defining* mark. For example, if all and only pots be the objects to be defined* then they are fixed under the mode of potness which is a universal. Yet potness, again, cannot be used as the defining* mark of all and only those objects which have been fixed for definition* under this very mode of potness. Thus the defining* mark has to be different from the limiting property (limitor) of being the objects to be defined* although the two have to be co-extensive.

That two co-extensive properties have, thus, to be different, shows that the Navya-Nyāya concept of definition* is essentially an epistemic concept being defined in terms of 'cognition', 'modes of cognition', etc. This epistemic nature of Navya-Nyāya definitions* will become clear as we proceed. In ontology i.e. outside epistemic contexts, Navya-Nyāya uses the law of extensionality to identify two co-extensive properties. Navya-Nyāya is, thus, extensional in ontology, but has to be intensional in epistemic contexts.

II. THE FIRST TYPE OF DEFINITION*

Two different types of definition* are admitted in Navya-

rative study of the Aristotelian and the Nyāya theories of definition, paper read in the U. G. C. Symposium on 'The Philosophical Tradition—Its Impact on the Progress of the Positive Sciences and Materialistic Advancement of Man' Sri Venkateswara University, Tirupati (Feb. 26-28, 1985). I have used single quotes to form names of expressions in accordance with common practice.

Nyāya corresponding to two different purposes for which defining* marks of objects are determined. The first purpose for finding a defining* mark of objects collected under a mode is to find out a mark by which all of these objects can be distinguished from everything else. Thus the defining* mark in this case becomes the probans *for inferring* that everyone of the objects to be defined* is different from everything else. This inference has to be for the sake of others; for according to Navya-Nyāya the defining* mark, M, is *used to prove* to others that it excludes the objects to be defined*, P's, from every non-P. This proof which takes the form of an inference for the sake of others, has to be put in the negative form (*kevalavyatirekin*).

Inf. 1.

1. *Pratijñā* — (All and only) P's are different from everything else.
2. *Hetu* — The reason being M.
3. *Udāharaṇa*— with (negative) *vyāpti*—whatever is not different from everything other than P's does not have M., such as Q's (other than P's).
4. *Upanaya* — (All and only) P's have M.
5. *Nigamana* — (All and only) P's are different from everything other than a P.

Now there is a difference between the Nyāya philosophers of the old and the new schools on the nature of *upanaya* (step 4 in the above Inf.). We shall follow the theory of the Nyāya philosophers of the old school here to explain why a positive inference of this form is impossible. We shall try to present Inf. 1* in the form of inference for the sake of others thus:

Inf. 1*

1. *Pratijñā* — (All and only) P's are different from everything else.
2. *Hetu* — The reason being M.
3. *Udāharaṇa*— with (affirmative) *vyāpti*—whatever has M is different from everything other than a P.
4. *Upanaya* — (All and only) P's have M.
5. *Nigamana* — (All and only) P's are different from everything other than a P.

The impossibility of this inference is due to the Navya-Nyāya theory of the nature of a valid probans. In a positive inference the *h* must be present in an instance (a P) where the *s* is known to be present. In a positive inference, in the technical language of Navya-Nyāya, the *h* must be present in at least one *sapakṣa.* Yet in Inf. 1* a *sapakṣa* is impossible, for the *s* can be present only in the *pakṣa,* (the subject of *Nigamana*) difference from non-P can be present only in P's. But the *pakṣa* is where the *s* is yet to be proved, and is not known to be a locus of *s* before the conclusion is proved. As there cannot be any instance other than the *pakṣa* where the *s* is known to be present, the possibility of a *sapakṣa* in this case is ruled out. What can be done is to find instances where the *s* is *not present* and to show that the *h* is also not present here, i.e. there can be only a negative pervasion in this case.

There is another point to be noted about Inf. 1. In Western logic it is usual to regard *P is not non-P* as logically true, which *follows* from any premise whatsoever. But, according to Nyāya, this is not the case. A sentence of the form 'P is not non-P' requires proof as much as any empirically true sentence.

Inf. 1 also explains why the defining* mark, which must be co-extensive with P-ness (the limiting property of being an object to be defined*) has yet to be different from P-ness. As a matter of fact, a defining* mark is often defined as a property co-extensive with, but different from, the limiting property of being an object to be defined*. If we try to frame an inference for the sake of others corresponding to Inf. 1. with M identical with P-ness then *upanaya* (step 4) becomes impossible. For it would be the unmeaning string of words: (All and only) P's are Ps. According to Navya-Nyāya, a sentence in which the limiting property of being the subject is the same as the predicate or has the same limiting property as the predicate fails to be significant and therefore if M and P-ness are indentified then 'P has M' becomes 'P has P-ness' i.e. 'P is P' which does not convey any sense at all. Thus, M has to be different from P-ness even though it has also to be co-extensive with P-ness.

[This Navya-Nyāya condition on sentence meaning has an important consequence. No analytic *statement* in which the predicate is a part of the subject concept can ever be significant, according to Navya-Nyāya. The argument is that there is no point

in making a statement of this sort, for it conveys no information at all. This does not, however, mean that there cannot be any analytic *judgement* as a form of cognition. One may very well cognize that A is A, but it will be pointless to make a statement that A is A.]

This also explains why definitions* in Nyāya are non-extensional. A definition*, i.e. a defining* mark, of this first type has to be used as a probans in an inference, which, according to Nyāya, is a kind of cognition. Thus a defining* mark of this type is necessarily to be understood only in an epistemic context. We shall see later that this is true of the other type of definition* also. Thus two properties which may be co-extensive are not identified in definitions* in which the limitor of being objects to be defined* is the limitor of P-ness of an inference, and the defining* mark the *h*.

As M (the defining* mark) is to be used as valid probans in an inference, it must satisfy all the conditions of a valid reason. A defining* mark may fail to be a valid reason in three ways:

(a) If the defining* mark fails to be present in any P then *upanaya* i.e. step 4 will be false rendering the inference invalid. This defect of M is technically called 'the impossibility of M' (*asambhava*).

(b) If M fails to be present in all P's but is present in some, then the defining* mark suffers from the defect of being too narrow (*avyāpti*).

(c) If M be present in all P's but is also present in other objects, then, too, M is a defective probans and the defect is technically called being too wide (*ativyāpti*).

These three defects of a defining* mark, impossibility, and being too narrow and too wide, are really defects of the defining* mark used as a probans for proving the exclusion of the objects to be defined from everything else. A good probans has to be present in all loci of inference (*p*). So if the M fails to be present in any loci of *p* then it becomes a defective probans called *svarupāsiddha*. If the M is present in some loci but is not present in all then it becomes a defective probans called *bhāgāsiddha*. If the probans is present in objects where the probandum is not present then the probans becomes defective and is called *anaikāntika*.

These three defects of probans are the causes of the corresponding defects of the defining* mark.

An example of a too wide defining* mark:

1. *Pratijñā* —Jars are different from non-jars.
2. *Hetu* —Because they possess qualities.
3. *Udāharaṇa* —Whatever is not different from non-jars does not possess qualities.

In this example, the pervasion is defective because, say, a piece of cloth which is not different from non-jars still possesses qualities. It is a locus of *h* (qualities) and still is the locus of the absence of *s* (difference from non-jars). This defect of the *h* is called *anaikāntika-tva.* This shows that the defining* mark, that of possession of qualities, being present in things other than jars is not sufficient to distinguish jars from non-jars.

If the defining* mark is too narrow, then, it, too, cannot be a valid probans for inferring that the objects defined* are different from everything else, because the defining* property will not be present in all objects to be defined* but only in some. As the objects to be defined* are the *pakṣa* (*p*) of the inference and the defining* mark is the *hetu*, the non-presence of the *hetu* in the whole of *pakṣa* involves the fallacy of *bhāgāsiddhi.* This fallacy is committed if we define* jars as having blue colour. The inference here will be of the following form:

An example of a too narrow defining* mark:

1. *Pratijñā* —Jars are different from non-jars.
2. *Hetu* —Blue colour (the reason being their possessing blue colour).
3. *Vyāpti* with *Udāharaṇa*—Whatever possesses blue colour is different from non-jars.

Here 2 is invalid, because, all jars (*pakṣa*) are not blue jars, so the *hetu* (blue colour) is not present in all *p*, and is, therefore, invalid.

The *hetu* is, also too wide, because everything blue is not a non-jar. This shows that one defining* mark may be defective in both ways, being too narrow and too wide at the same time. Such defining* marks are, therefore, cases of cross classification

of defects. Now, according to Navya-Nyāya philosophers, such instances which can be classified as being defective in both ways, do not mean the two properties, being too narrow and being too wide, are themselves overlapping. The rule here is: Even though there are instances which can be put in two classes, the class properties themselves are not overlapping if the class properties are imposed properties, i.e. are *not universals* (*jātis*). Thus there is a fundamental difference between defining* and classifying objects by means of universals which are roughly essential properties of natural kinds and defining* and classifying objects by means of imposed properties which do not have independent ontologically reality. If a defining* mark is a universal and there are instances which are instances of two different universals, that shows that these universals cannot be really both of them universals. One of them at least must be an imposed property. But if there is an instance which has two imposed properties none of which is subordinate to the other, this does not mean that at least one of the imposed properties is not an imposed property at all. This difference between universals and imposed properties is due to the fact that universals themselves are real and they sort out real objects into real classes. Imposed properties, however, do not have a reality of their own, but are reduced to other ontological reals and, hence, do not give rise to any ontological difficulty even if they overlap. Two universals cannot overlap unless the one is subordinated to the other in the sense that the set of instances of the one is a proper sub-set of that of the other. There can be no intersection of two classes of objects classified by universals unless the one is a proper sub-set of other. In the case of imposed properties, however, this rule does not hold good. One and the same object may belong to the two sets of objects classified by these imposed properties without harming the imposed properties themselves. According to Navya-Nyāya, it is only in the case of the imposed property that there can be an overlap with impunity. As the properties of being too wide and too narrow are not universals they do not lead to classifications of natural kinds. For one reason a defining* mark may be said to be too narrow, for another reason, it may be said to be too wide.[2]

[2]For a detailed discussion of this point, see my 'The Navya-Nyāya Theory

In this first type of definition* the defining* mark, M, must be different from and co-extensive with P-ness. Navya-Nyāya also condemns vicious circle in definition* when two defining* marks are compared. In such a case one of the defining* marks has to be rejected and the other may be retained. This preference for one of the two defining* marks is often based on other considerations, ontological, epistemological, etc.

The defining* mark, M, and exclusion of the objects to be defined, P, from every non-P, must be related by a relation of pervasion if M is to be used as a probans for proving something in P. According to Navya-Nyāya, the relation of pervasion is not a necessary relation. Hence a definition states only a material co-extensiveness of things having M and P-ness. In many cases, therefore, there are ad hoc conditions on M to make it co-extensive with P's and the defining* marks in such cases are arbitrary and artificial. In many cases even the arbitrary ad hoc conditions fail to make M co-extensive with P. In such cases the Navya-Nyāya philosophers follow the procedure of defining* by paradigm cases. They pick out a clear case, i.e. a recognized instance of P which is seen to possess M which may not be further analysable. In such cases the M is a universal and the paradigm case (a P), is recognized as a clear instance of M. The M which is evident in this paradigm case is then regarded as the defining* mark of all P's even including boundary cases. This type of definition* is called 'definition* involving universal' (*jāti-ghaṭita-lakṣaṇa*).

We shall give here two examples of this type of definition*. Viśvanātha[3] states the final definition* of inferential knowledge and perceptual knowledge in the following way. (1) In determining the defining* mark of inferential knowledge (*anumiti*) the limitor of being objects to be defined* is *the property of being inferential knowledge*, inference-ness (*anumiti-tva*). The procedure followed by Viśvanātha in this case is to pick out a clear and unambiguous case of inferential knowledge, and then to observe, by introspection, the universal inhering in this particular in-

of Abstraction' in *Freedom, Progress and Society : Essays in honour of Professor K. Ratehidananda Murty*.

[3]Viśvanātha, *Bhāṣāpariccheda* with *Siddhāntamuktāvali*, pp. 416-19 (of 5 below).

stance. But, here, there is a difficulty because according to Navya-Nyāya in one particular instance many universals which are related among themselves as wider and narrower may be present. Thus in one instance of inferential knowledge the universal of being knowledge is present and can be introspectively observed to be present there. Yet this universal of being knowledge cannot obviously be the defining* mark of inferential knowledge which is a species of knowledge. So, one has to observe by introspection a universal which is, as a matter of fact, present in all and only instances of inferential knowledge. Viśvanātha achieves this by stating that the universal to be observed in introspection as being present in inference has to be a universal which cannot be present in perceptual knowledge. According to Navya-Nyāya, different types of knowledge have all the universal of knowledge which has universals subsumed under it, which are present only in the different species of knowledge. Thus an instance of inferential knowledge has two universals—the wider universal of being knowledge and the narrower universal of being an inference. Viśvanātha by stating that the universal present in a clear and unambiguous instance of inferential knowledge must not be present in perceptual knowledge succeeds in mentioning only the narrower universal of being an inference as the required mark.

2. Viśvanātha in the next sentence gives this definition* of perceptual knowledge: The defining* mark of perceptual knowledge is the universal present in a clear and unambiguous case of perceptual knowledge but which is not present in any instance of inferential knowledge. But this raises a difficulty, for, now, inferential knowledge is defined* in terms of perceptual knowledge and perceptual knowledge in its turn is defined* in terms of inferential knowledge. Thus the two definitions* become circular. The problem is to show why the circularity in definition* of this type is not vicious. As a matter of fact even in Western philosophy circularity in definitions of this type is said to be only apparent.

> "We wish to avoid the *circularity* in which we would be involved if we try to define possible worlds in terms of the logical notion of consistency and then later defined consistency in terms of possible world.

> Fortunately, there is a way out of this predicament.... Consider, for a moment how the charge of circularity in definitions may in other cases be avoided. We look in a dictionary, for example, to find out what it is for something to be complex and find that the concept of complexity is opposed to that of simplicity; we try to find out what it is for something to be simple and find that the concept of simplicity is opposed to that of complexity. Yet such a circle of definitions can be, and standardly, is broken. It is broken by *citing examples*: sometimes by ostention (pointing) sometimes by naming and sometimes by description.... By citing clear-cut examples (they are often called 'paradigm examples')".[4]

There is no real circularity in the definitions of inferential knowledge and perceptual knowledge as given by Viśvanātha here, for one can, and does, recognize a clear case of inferential knowledge as such without referring to perceptual knowledge and vice-versa.

III. THE SECOND TYPE OF DEFINITION*

So far the defining* mark has been considered exclusively as a probans of difference from everything other than the objects to be defined. There is however another type of definition* which is completely different from this type. This second type of definition* is used to explain why a word applies to whatever it applies. According to Nyāya, a word becomes applicable to its referents if and only if there is a sufficient reason for its application to its referents. This reason for application must be a property of the referents. This property which is the sufficient reason for application of the word to its referents is the defining* property of the referents being the referents of that word. This defining* mark is the *nature* of the referents of the word, and is denoted by the abstract noun formed from the word. For example, jar-ness is the nature of jars and is denoted by the abstract noun 'jar-ness' formed from the word 'jar' by the abstraction suffix '-ness'.

[4]R. Bradley and N. Swartz, *Possible Worlds*, p. 4.

There may be different properties which belong to all and only those objects which are denoted by a word and the problem is to decide which of them is to be regarded as the defining* mark of the objects considered as the referents of the words. All co-extensive *properties* are not necessarily identical, even though two co-extensive *universals* are. For example, all jars and only jars have the two properties—(1) having a conch-shell like neck etc., and (2) jar-ness. Now these two properties although extentionally co-extensive are still different for (1) is an analysable property while (2) is not. It is to be noted that jar-ness cannot be used as a probans to infer that jars are different from non-jars, for here the limiting property of being objects to be defined*, jar-ness, becomes the same as the defining* mark. Thus jar-ness cannot be regarded as the defining* mark of jars, in the first sense of the term. Jar-ness can, however, be the defining* mark of jars in the sense of being the sufficient reason for the application of the word 'jar' to jars. In this case, the limiting property of being objects to be defined* does not become identical with the defining* mark, jar-ness, for the limiting property is not, in this case, jar-ness, but the property *being the referent of the word 'jar'*. In this type of definition* we are not considering the jars *as objects to be defined**, we are considering jars only *as referents of the word 'jar'* and are trying to discover the sufficient reason for its application to them.

The defining* mark in this sense is a sufficient reason for the application of a word to its referents, but need not be a necessary condition too. For it is possible that different words may be applied to exactly the same objects for different reason. This difficulty is solved by specifying the word. Then, once the word is given, the necessary and sufficient condition for its application to its referents is the property denoted by the abstract term formed from the word. If a different word applies to exactly the same objects, the necessary and sufficient reason for its application to its referents will, in general, not be the same as that of the first word. It is only in the case of two synonymous words that the necessary and sufficient reasons for their application will be the same.

IV. RELATION BETWEEN TWO TYPES OF DEFINING* MARKS

A usage-explaining defining* mark is the object (i.e. the property) the cognition of which produces the correct use of the word. A distinguishing defining* mark is the object (property) of that cognition which produces the inferential cognition that objects defined* are different from everything else. These are the two ways in which a defining* mark is useful. The usefulness of a defining* mark is, thus, what one can get from its *cognition*. The usage-explaining defining* mark of earth is earth-ness, the distinguishing defining* mark is smelliness (smell). For in order to use the word 'earth' correctly it is necessary to have the cognition of earth-ness (the word 'earth' is applied correctly to all and only those things which have earth-ness, which one has to cognise before being able to use the word). But earth-ness cannot be a distinguishing* mark of earth, as, then, the inference will involve petitio. Smelliness, again, can only be a distinguishing* mark of earth, for it can be used as a probans in the inference of the difference of earth from non-earth. It cannot, however, be a usage-explaining mark, for one who does not have the cognition that earth and only earth possesses smell, can yet use 'earth' correctly. Cognition of smelliness is not the reason for the correct use of 'earth'.

Pattabhirama, the author of *Mañjūṣā*, explains a different theory of the relation between usage-explaining and distinguishing defining* marks.[5] On the theory generally accepted by Navya-Nyāya philosophers the two types of defining* marks are different, as explained above. The present theory is that the distinguishing defining* mark is the only defining* mark in the proper sense of the term. A defining* mark may or may not be usage-explaining, but to be a defining* mark it has to be distinguishing the defined* objects from everything different from them.

Against this theory it may be pointed out that in that case being as such cannot be defined*, for it cannot be distinguished from anything other than being, because there can be no such entity (it is nothing). The reply to this objection is that in such cases the object to be defined* should not be cognised under the

[5]Pattabhirama Sastri, *Mañjūṣā*, in *Kārikāvali*, ed. C. Sankara Rama Sastry, pp. 98-101.

mode of being-ness which is a global property, but under the mode of being the referent of the word 'being', which is not a global property, as it involves relation to a particular word.

Similarly, the objection that earth-ness cannot be a defining* mark in the proper sense of earth, for earth-ness cannot be a probans for inferring the difference of earth from non-earth, can be met by holding that the limitor of being the object to be defined* in this case is not earth-ness, but being the referent of 'earth'.

Now Pattabhirama gives the theory of Mahādeva. According to Mahādeva a usage-explaining defining* mark is the object of the cognition which *enables one* to use the word correctly; this cognition is the *reason* for application of the word. Now this means that by cognising a usage-explaining mark, one *infers* that the object applies to whatever it applies. But, then, smelliness will be a usage-explaining mark of the word 'earth' as much as earthness. For as earthness is pervaded by the correct applicability of 'earth' (wherever there is earth-ness, 'earth' is correctly applicable—this is just one side of the equivalence), and as smelliness is pervaded by earth-ness, smelliness, too, is pervaded by correct applicability of 'earth' and hence can be used as a probans for inferring its correct applicability. Thus the limitor of being objects to be defined* is always a property of the objects themselves, but is never the property of being referents of the words.

Thus we have three different theories of the relation between two kinds of defining* marks. (i) The commonly accepted theory is that these are of two different kinds; (ii) the second theory is that a defining* mark in the proper sense is only a distinguishing mark, the so-called usage-explaining marks, too, can be used as probantia for inferring difference from all others by only re-interpreting the limitor of being objects to be defined* as the property of being referents of the words. If this property is regarded as the limitor, then all usage-explaining marks can be used as distinguishing marks; (iii) Mahādeva's theory that a distinguishing mark can also be used as a usage-explaining mark, by conceiving a usage-explaining mark as a mark the cognition of which *enables one to infer* the correct applicability of the word. Thus there are only distinguishing defining* marks, and no special type of usage-explaining defining* mark.

Now Pattabhirama gives his own solution of this controversy. According to him, there are two different motives for finding defining* marks:

(i) When one hears the word 'earth', one may want to know the distinguishing mark of earth. Here the limitor of being objects to be defined* is a property of the objects denoted by the word.

(ii) Or, one may want to know why the word 'earth' is applicable to whatever it is applicable. Here the limitor of being objects to be defined* is being a referent of the word 'earth'.

Thus Pattabhirama concludes that both types of defining* marks are proper and correspond to the two different motives for discovering and using defining* marks.

V. SOME SPECIAL FEATURES OF THE NAVYA-NYĀYA THEORY

The defining* property must be present in all and only objects to be defined*. We have already seen that according to Nyāya there are two different types of definition*—(i) as a probans for differentiating the objects to be defined* from other objects; (ii) as the reason for the application of a word to its referents. Navya-Nyāya has developed an elaborate technique for showing that the defining* property is present in all and only the objects to be defined*. The problem arises specially in the case of objects of very different kinds when all of them are to be defined* in one definition. The usual procedure is to find out as simple a property as possible and then to find types of relations which relate the simple property to the different cases. This shows that the Nyāya theory of definition* is very different from the Western theories according to which all the objects become instances of the defining property which is a universal. According to Nyāya, the defining* property must be common to all and only those objects which are to be defined only in the sense that the defining* property is related to them all, usually by very different relations to the different types of objects to be defined*. For example, we may consider the defining* property of types of pervasion—positive and negative. To define* pervasion if one fixes the pro-

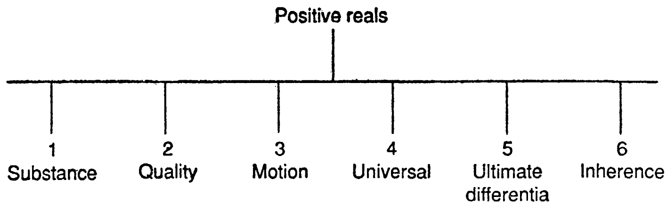
perty of being absent from all loci of the absence of the probandum, then this property becomes the defining* mark of only one type of pervasion, but one cannot apply this definition* to only positive (unnegatable) pervasion. If, on the other hand, one defines* pervasion as being the counterpositive of a negation which pervades the negation of probandum, then one can define only negative pervasion. But we cannot find in this way a property which is common to both types of pervasion—positive and negative. The common property, therefore, has to be sought elsewhere, i.e. in what both the types of pervasion prevent. If one has a cognition of whatever type of pervasion the cognition of deviation is prevented. Thus both the types of pervasion can be defined* as the object the cognition of which prevents the cognition of deviation. In this, two different types of pervasion, defined* in two ways, are brought under one definition* by finding a property common to both.

There are two fundamental ways in which the Navya-Nyāya theory of definition differs logically from Western theories, apart from the ontological point of view. One way in which the Navya-Nyāya theory differs from Plato's theory is that Plato tries to find out the essence or the universal of justice, for example. In Navya-Nyāya definitions* are properties, not necessarily universal, not necessarily essences and may even be individual properties belonging to single individuals.

In Plato, Aristotle, Porphyry there is a heirarchy of genus and species, and definition is per genue at differentiam. Thus every definition excepting that of summum genus must have at least two components—the generic property and the differentia; the defining property of man, for example, is animality-and-rationality. The Navya-Nyāya theory of definition* is fundamentally different from this traditional Western theories because the structure of the defining* property is not always composite, specially when it is a proper universal in the sense of Nyāya. A universal is an unanalysable property even though it may be subsumed under a wider universal. No universal is a composite of the generic property and the differentia. Thus the defining* property of men, in the second sense—i.e., the defining* property in the sense of being the reason for the application of the word 'man', for example,—is just humanity even though it is subsumed under the generic

property of animality. According to Navya-Nyāya, humanity as a property is as simple as animality and cannot be obtained by adding the differentia to the generic property. Analysis of a concept is possible only in the case of composite properties which are not proper universals. Universals, when not referred to by an expression, are known in and through themselves and not under the mode of some other property and therefore, do not stand in need of analysis; indeed they cannot be analysed at all.

The second fundamental point of difference between the Navya-Nyāya theory and traditional theories of definition stems from the Navya-Nyāya doctrine that a defining* property need not be a universal. A proper universal is related to all its instances by one relation, inherence, according to Navya-Nyāya. The defining* property is very often a property different from a proper universal and is often related to different types of objects by different types of relations. Navya-Nyāya has, therefore, developed a very elaborate technique of showing how the defining* property can be said to be 'common' to objects which are very often ontologically different. This is done by determining the specific nature of the relation in which the defining* property can be said to be 'common to' the different types of objects. This specific relation between the defining* property and the different types of objects is very often a sum or a product of the different relations by which the defining* property is related to different types of objects. This sum (product) of relations is necessary, for it is by this relation that the defining* property can be said to be 'common to' all the different types of objects. As an example of this technique of showing how a defining* property is 'common to' all the objects to be defined, we may explain the definition of *being a positive entity* (bhāvatva). According to Navya-Nyāya, there are six ontological categories of positive reals. There is one proper universal common to the first three categories of positive reals, namely existence (*sattā*) which is the highest universal (*parā jāti*). Existence being a universal is related to the first three categories of reals by the relation of inherence. To explain the problem we show by a diagram all the six categories of positive objects :



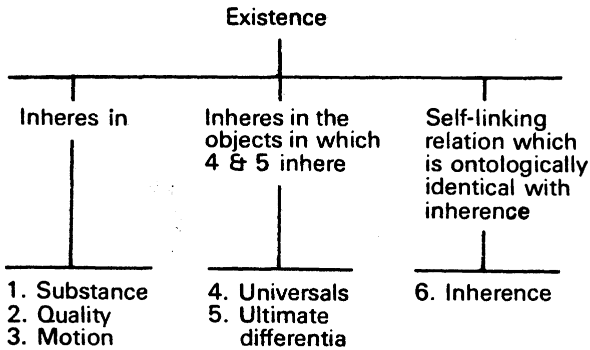
Existence is a property common to the first three categories in the sense of being related to them by inherence. Now, according to Navya-Nyāya, the remaining three categories of objects do not have existence inhering in them. Thus, if existence is to be the defining* property of being a positive object it must be related to the last three categories of objects by other relations. Navya-Nyāya shows how existence can be indirectly related to the fourth and fifth categories of objects. Universals and ultimate differentia inhere in, say, substances in which existence also inheres. Thus we have:

(1) Existence inheres in substances etc.
(e — inherence in — s)
(2) Universals and ultimate differentia inhere in substances
(u — inherence in — s)
(3) Substances — (inherence in) — Universals and ultimate differentia
(s — (inherence in) — u) from (2)
(4) Existence — inherence in/(inherence in) — Universals and ultimate differentia
from (1) and (3)
where '/' is the sign of relative product of relations.

In Navya-Nyāya terminology, existence is related to universals (and ultimate differentia) as both inhere in the same object.

Still there is the problem of showing how existence can be related to inherence itself, for inherence is the sixth category of positive reals. Existence cannot inhere in inherence, for according to Navya-Nyāya existence inheres in only the first three categories of positive reals. According to Navya-Nyāya existence is related to, located in, inherence by a self-linking relation which is ontologically inherence itself. Existence is present

in inherence by inherence itself. There is no need to postulate an ontologically different relation obtaining between existence and inherence. Inherence which is the second term of the relation also functions as the relation. Thus although the relation between existence and inherence is not inherence *as inherence*, but only *as a self-linking relation*, still it is inherence which is ontologically the same as this relation. Thus we have the following situation:



Thus existence is 'common to' all the six categories of positive objects by the relation : (inherence in) U (inherence in/-(inherence in).

The technique of stating a very simple property as simply qualifying an object, and then stating explicitly in what sense this 'qualification' is to be taken so that the property is shown to be common to all and only the objects to be defined*, is called '*anugama*' of the defining* mark; i.e., showing how the defining mark* is related to all and only the objects to be defined*. The point to be noted here is that the qualification is a very complex relation sometimes auni on (*anyatara sambandha*), sometimes a product (*ubhaya sambandha*) of relations which themselves may be complex, sometimes a *chain of relations*,

(i) (Ex) (aRx . bSx), (ii) (Ex) (aRx . xSb),

where (i) is reducible to (ii) by using the converse of S. But as converses are not used in Navya-Nyāya both the forms (i) and (ii) of chain relations are used instead. In the example given above, the second term of the union is itself a relative product of the form (i).

There is, however, another important aspect of the Navya-Nyāya technique of *anugama*, which we now explain.

VI. THE TECHNIQUE OF EXPRESSING UNIVERSALITY

In Western logic universal laws are formulated by means of variables. These variables are signs bound by some operations. They also act as place-holders for names of their values. Because of the convention that the *same name* to be written at *all* places where a variable occurs (within the scope of one quantifier, or in the same formula, if it occurs freely), the variables perform the function of relative pronouns.

Although variables have been used in Indian Algebra for a long time, they have not been used in Nyāya. In Algebra before the introduction of variables, the pronouns *yāvat—tāvat* were used. In Nyāya, a very popular method is similar to this practice. It used relative pronouns *yat—tat*, (that—which), *sva* (its, or one's own) etc.

Example :—

Df. P. Pervasion is the co-presence of *that* with *that which* is not limited by the limitor of the counterpositiveness to the constant absence that has a common locus with *it* and has no common locus with *its* counterpositive.

In this definition the first 'that' stands for *hetu*, the second that' for *sādhya*, the 'it' stands for *hetu*, 'its' for the *constant absence*. The 'its' occurs only in the translation, in Sanskrit it is eliminated by a compound.

(i) This method has the disadvantage of not being able to show the pattern of cross-references—it is not clear which 'that' has to go with which 'which' if in the sentence there are two or more 'that's'and 'which's'.

(ii) Though this technique of using relative pronouns is widely used in formulating universally valid laws, yet Raghunātha reports that many logicians find fault with it. The controversy between the older and the later logicians centres round the interpretation of the relative pronouns. The older logicians hold that these pronouns stand for any and every object, hence sentences containing them are universal. The later logicians

point out that although pronouns like 'that' can stand for anything, yet they cannot stand for everything simultaneously. For example, in the clauses 'the book *that* I purchased . . . ' 'the pen *that* I purchased . . . ', etc. the 'that' in the first clause stands for the book, while in the second 'that' stands for the pen. These logicians argue that the meaning of relative pronouns like 'that', etc. involves reference to the particular object one has in mind when he uses these pronouns. This means that the very meaning of the 'that' in the first clause involves reference to the book, whereas that of the 'that' in the second clause involves reference to the pen. But if the very meaning of 'that' involves reference to what one has in mind at the time he uses it, then the sentence containing the word 'that' becomes particular. We can, of course, have any number of particular sentences by changing the reference of the word 'that', but the sentence containing 'that' cannot be true of all things *simultaneously*. So they developed a method of eliminating these pronouns from definitions—*anugama*—which we explain now.

The older logicians however do not accept this interpretation of the relative pronouns. They hold that these pronouns, of course, refer to particular object which one has in mind, yet the *meaning* of 'that', etc. *does not involve* reference to these objects. Hence sentences containing these pronouns express a universal trait common to all the cases under consideration.

We may compare here the Western method of expressing universality by means of the variables. The law, (x) (x = x), for example, is logically true. The sentence means, if we eliminate the quantifier and the variable, by assuming the universe to consist of entities '*a, b, c* ...', the conjunction a = b. b = b. c = c . . . . That is, the sentence expresses a truth about a, b, c . . . . *simultaneously* for it is a conjunction of true statements about all the entities.

The difference between the theories of the older and the later Navya-Nyāya philosophers may be explained in the language of modern Western logic thus:

(1) According to the older school, the pair of relative pronouns 'that — which' stand for a universally quantified sentence.
(2) According to the later school, this pair stands for a sentence with a free variable. Such a sentence may serve the purposes

of a universal sentence only by substituting names for the free variable *in succession*. Still each substitution will yield a singular sentence. Hence these philosophers use the technique of *anugama* to avoid using relative pronouns altogether. We may explain this point with an example of two types of definitions of false cognition.

Df F.C. A cognition is false if and only if it has a *that*-mode in what has an absence of *that*.

Thus cognising something *as* a piece of silver is to have a cognition with silverness as its mode. This cognition is false if and only if the object cognised has absence of silverness, i.e., is not a piece of silver. In this definition the relative pronoun 'that' occurs twice indicating that they necessarily refer to the same real. But the point of the later school is that, here, we have got the definition of the false *cognition of silver*, not of false cognition in general. We can, of course, substitute any name to get any number of definitions all of which are singular sentences.

To avoid this difficulty, the technique of *anugama* is used, by which all occurrences of relative pronouns are eliminated from the definition. So we have the following definition of false cognition.

DF. FCA. False-ness (is) being a cognition determining objecthood *qualified by* a thing, the qualification being by both the relations—(i) residence in itself, (ii) being limited by a property not resident in itself.

A false cognition has an object, i.e. determines objecthood resident in the object. But the cognition is false because the mode under which the object is cognised is not a property of the object, does not belong to the object. The relation of the thing to (in) the objecthood is by the product of two relations—residence in the thing (itself), and being limited by a property not resident in itself. Now this definition is completely general because it involves only *general terms*; the relative pronoun 'itself' occurs only in the statement of the relation. But this is how all relations except inherence are stated in Navya-Nyāya. A relation of this type is the referent of an abstract relative term, like 'objecthood', which has a free variable in the place of the successor thus:

Objecthood = (λx) = [x is an object of (the cognition) y]

where 'y' is a free variable and is expressed by 'its', 'itself', 'one's own', etc. (*sva*). Thus the relation of a cognition to *its* object is by the relation—objecthood determined by (the cognition) itself, which is a completely general relation. Particular relations are obtained by assigning different values to 'itself'.

CHAPTER 6

THE NAVYA-NYĀYA THEORY OF CAUSATION

The Navya-Nyāya concept of cause has many special features which distinguish it not merely from Western theories but also from theories of other Indian schools. In this chapter we shall explain some of these features.

I. INTRODUCTION

In Indian philosophy in general and Navya-Nyāya philosophy in particular objects are regarded as causes and effects in contrast with Western theories which generally hold causes and effects to be events. In Indian philosophies as also in Navya-Nyāya, the concept of effect essentially involves the concept of time, but a cause need not be a temporal object. Thus in Navya-Nyāya, God, His will, His knowledge, etc. which are all eternal existents are causes of everything that is produced. In Navya-Nyāya an effect is defined as that which did not exist before (*prāgabhāva-pratiyogitvaṃ kāryatvam*).

Even though the cause must precede the effect in time, still it is not necessary that the cause must cease to exist at any time, say, after producing the effect. Thus eternal substances like the self, the *ākāśa*, and universals, are causes of various types of effects including knowledge.

Because of this essential relation to the conception of time, the nature of the causal relation is conceived differently corresponding to different concepts of time. In Indian philosophy there are basically two different theories of causation corresponding to two different conceptions of time—the Sāṁkhya view and the Nyāya view. Sāṁkhya conceives of objects changing in time as essentially becoming, and so conceives the causal relation to explain a continuous process in time. In its theory of causation the Sāṁkhya system explains growth, development, transformation

of objects. The Navya-Nyāya philosophers, on the other hand, conceive time as a discrete series of moments and therefore interprets continuous development of objects as really discontinuous momentary series of changes. Thus when a seed sprouts and the seedling grows into a plant the Navya-Nyāya philosophers interpret this process as consisting of successive momentary stages. According to Navya-Nyāya there cannot be any real continuous development, any process, but only successive effects in a discontinuous series. The illusion of continuity is due to the very small interval between two moments of time which are atomic or the very small amount of change which does not leap to the eye. This explains why the Sāṁkhya chooses one type of examples while explaining its theory of causation, while Navya-Nyāya chooses an entirely different type of examples to explain its theory. The differences in the choice of examples will be clear if we study the examples.

1. *Examples of Causes in Sāṁkhya*

Sāṁkhya gives examples of three types which bring out the different aspects of its theory of cause. (1) One example of cause is of the seed growing into a plant. In this example, the seed which is the cause grows and develops into the effect which is the plant. (2) A second example which is often used in Sāṁkhya is that of milk transformed into curd. Here milk is the cause and curd is the effect. This example is different from the example in (1) for here there is no growth of the cause into the effect. Here the relation appears to be continuous transformation of one object into another. (3) Another example often given in Sāṁkhya is of oil seeds and oil. The oil seeds here are the causes and oil is the effect. This example is different from the examples in (1) and (2), because oil is *extracted* from oil seeds, while neither a plant nor curd is extracted from the cause. After extraction of oil the cakes are left as residue from the oil seeds, but there is no residue left in the examples in (1) and (2).

Although these examples are of very different nature, Sāṁkhya philosophers abstract a common feature from them. A cause and its effect are not two separate, discrete entities but are really two states of the one and the same continuing substance. The difference between cause and effect is really a difference between

an undeveloped and developed stage of one and the same thing, between potency and actuality, between an unmanifested state and a manifested state (*avyakta* and *vyakta*). Thus according to Sāṁkhya, the effect cannot be a totally new object for it is simply the developed, manifested state of the cause. Nothing can be manifested in an effect that was not latent in the cause. This theory of Sāṁkhya is therefore known as the theory of the effect pre-existing in the cause (*satkāryavāda*).*

2. *Examples of Causes in Navya-Nyāya*

Navya-Nyāya uses a completely different type of examples to explain its theory of cause. The example most often used in this context is that of a jar and its two halves. The two halves of a jar are its causes and the jar is the effect. (Indian potters make a jar by first making two halves and then joining them). Thus this Nyāya example of an effect is a mechanical aggregate of pre-existing parts which are its causes. Effects are conceived as wholes made of parts, although, as we shall see later, this will be true only in cases of material cause (*samavāyi kāraṇa*) of substances. But in no form of causation, Navya-Nyāya admits continuous development. This difference in the conception of time and of cause has many important consequences in ontology and cosmology specially in theories of creation. According to Sāṁkhya, the ultimate cause of the material world is unmanifested matter (*prakṛti*) and the world arises out of this ultimate matter in different stages which are stages of manifestation of the ultimate material cause. The perceptible world of gross objects are manifestations of *subtle* qualities, such as, colour, sound, taste, smell, touch (*tanmātra*). Thus the Sāṁkhya philosophers do not need a theory of atoms to explain the creation of the material world. The Navya-Nyāya philosophers, however, have to postulate atoms (of four elements, *mahābhūta*), the process of creation being the aggregation of atoms by stages. Navya-Nyāya, therefore, cannot admit the three *guṇas* (*sattva, rajas, tamas*) in the one ultimate material cause.

*Here 'cause' is used to mean *material cause*. Sāṁkhya philosophers, however, admit another type of cause, *nimitta kāraṇa*, (auxiliary cause) which changes the material cause from a relatively unmanifested state to a more manifested state. (Due to Dr. Karuna Bhattacharyya).

For one thing, Navya-Nyāya cannot admit only one material cause of the universe, for the universe being an aggregate requires parts which, in the last resort, are atoms, infinite in number. Although both Sāṁkhya and Navya-Nyāya philosophers admit the five gross elements—earth, water, fire, air and ether—as the proximate causes of gross composite material objects still the process of composition of the elements to produce the objects is differently conceived in the two systems. According to Sāṁkhya, every object has all the five elements as its causes, the difference between earth and water, for example, is due to the difference in the proportion of the five elements mixed to produce them. According to Sāṁkhya, gross earth (from which earthen vessels are produced), for example, has $\frac{1}{2}$ (of its mass) *earth element*, and $\frac{1}{8}$th of each of the other four *elements*. According to Nyāya, however, gross earth is composed of earth atoms only, other atoms play only an auxiliary role but do not enter as constituents into gross earth.

Navya-Nyāya philosophers also do not admit the three *guṇas* as being constitutive of all material objects. Mathurānātha mentions that according to Nyāya the so-called three *guṇas*, (*sattva*, *rajas* and *tamas*) are really the merits and demerits (*adṛṣṭa*) attaching to the finite selves which are causes of origin, duration and cessation of the world. These merits and demerits cannot belong to anything material, and hence the three *guṇas* are really qualities of the finite selves and are not constitutive of any material object.

In Indian philosophy in general causality is used to explain the theory of creation.

II. THE NAVYA-NYĀYA DEFINITION OF CAUSE

According to Navya-Nyāya, the causal relation is a uniform, temporal relation which does not have any necessity over and above uniformity. A cause is an invariable, immediate antecedent of the effect, and which is not otherwise established (dispensable). This Nyāya definition of cause involves various features.

(1) The first thing to be noted is that the effect can arise only where the cause is. This means that the effect and the cause must be located in one and the same thing. To be located in an

object is simply to be related to it usually by an occurrence-exacting relation. It is universally assumed in Western philosophy that things are located in space. But in Navya-Nyāya as being located means to be related, by occurrence-exacting relation, location does not mean always location in space. For example, in the case of a pot which is an effect of two pot-halves (the causes), they are both located in the halves. The whole pot when produced will be located in the halves of which it is constituted. The halves again are related to themselves by identity. Thus the halves are in the halves by identity and their effect the pot is in the halves by the relation of inherence-converse. The causal relation in such cases being a part-whole relation, it is easy to see that the whole is in the parts, i.e., the parts are where the whole is located. So the effect is located in the cause and the causes are located in the cause by the relation of indentity. Hence the causes and the effect are co-present in the same locus. According to Navya-Nyāya, there can be no effect of any cause if they are not both located in the same object.

(2) The word 'cause' is used in Navya-Nyāya and also in Indian philosophy in general in the sense of what is called a causal condition in traditional Western philosophy. This sense is, however, different from the sense of contemporary writers like Davidson. Thus according to Nyāya, there will be in general many causes for one effect. The sum total of all these causes is again a cause in the sense of being the sufficient condition of the effect. For the totality of all conditions (*kāraṇa-sāmagri*) we shall not use any special term, although Mill, for example, has used the term 'cause' in this sense.

(3) The causal conditions of an effect are, according to Navya-Nyāya, either positive or negative. Positive conditions are those which being present the effect is produced, and which being absent the effect is not produced. A negative condition, on the other hand, is that the presence of which prevents or blocks the production of the effect; its absence, therefore, is necessary for the production of the effect. A negative condition is, therefore, called an *impediment* (*pratibandhaka*) of the effect. Thus if an impediment is present then the effect is prevented from being produced by the positive conditions. In the sum total of conditions, which is sufficient for the production of the effect, the positive

conditions must all be present, and all the impediments (negative conditions) must be absent. Thus the *absence* of an impediment is a necessary condition of the effect. Navya-Nyāya uses this concept of impediment in various ways, in logic, epistemology, ontology and other fields.

(4) A very special feature of the Navya-Nyāya concepts of cause and effect is that the causal relation cannot be stated as holding between two objects *in general*. Thus the definiendum cannot be simply '*x* causes *y*' where *x* and *y* stand for any object whatsoever. According to Navya-Nyāya, whenever we are talking of a causal relation we necessarily understand objects *under some specific modes*. As one and the same object can be cognized under different modes, the causal relation cannot hold between the objects themselves, but only between objects as cognized under certain specific modes. Thus a fire which has a blue flame may produce smoke. In such a case fire is a positive condition of smoke not *as* a blue thing but *as* fire. That is, the cause of smoke is the *fire as fire* and not fire as a blue thing. So also with the effect. The mode under which alone an object is the cause is called in the technical language of Navya-Nyāya 'the *limitor of cause-ness' resident in the object* which is the cause. So also the mode under which alone the object is the effect is called 'the limitor of effect-ness' resident in the object which is the effect. Thus the definiendum, according to Navya-Nyāya, will be

x, only as an F, causes y, only as a G.

This is a fundamental point about the Navya-Nyāya conceptions of cause and effect which we shall contrast with a similar theory proposed by Davidson.

"He claims that contemporary attempts to show that 'caused' is a disguised sentential connective are misguided. Instead singular causal statements report a relation between particular events. Strictly speaking, therefore, the cause of one event is always another event. If one event causes another, they must be covered by a causal law, which Davidson tentatively suggests might have the form of a conjunction: if event *u* causes event *v* then there must be properties F and G such that Fu and Gv and some law (L) holds to the effect that whenever an F event occurs, it causes a G event which occurs epsilon later,

and whenever a G event occurs, it is caused by an F event which occurs epsilon earlier. Put symbolically:

$$(x)(n)\,[Fx\&\ t_x=n)\rightarrow(E!y)(Gy\ \&\ t_y=n+\in\ \&\ Cxy)]$$

(L) and

$$(x)(n)\,[(Gx\ \&\ t_x=n+\in)\rightarrow(E!y)\,(Fy\ \&\ t_y=n\ \&\ Cyx)]$$

'x' and 'y' range over events, 'n' ranges over numbers, *F* and *G* are properties of events, 'Cxy' is read 'x causes y', and 't' is a function that assigns a number to an event to mark the time the event occurs.

From this law, together with a premise to the effect that an event of a certain description exists,

(P) $(E!x)\,(Ex\ \&\ t_x=3)$

we could infer a singular causal statement saying that the event caused another.

(C) $(\iota x)\,(Fx\ \&\ t_x=3)$ caused $(\iota x)\,(Gx\ \&\ t_x=3+\in)$.

The precise details of this do not matter. The important thing is that that if one event causes another, there must be descriptions of these events which figure in a true causal law.

Just as the same object can be described or referred to in different ways, so the same event can be referred to or reported in different ways. Thus I might report the same event by saying 'Smith struck a match at 3 O'clock' or even 'an event occurred at 3 O'clock which caused an explosion'. Causal statements are extensional. That is, if some statement truly says that one event caused another, any statement derived from this by substituting another description of one of the events referred to will also be true. Conversely a causal statement can be true even if it refers to cause and effect by means of descriptions which cannot be generalized over, i.e., such that no causal law covers all events answering to just those descriptions.

This is important, for it shows that one can hold a Humean view of causation while admitting that no singular causal statement entails any particular causal law. All that a singular causal statement entails is that there is some causal law covering the event in question.

Again,

'Mill . . . . was wrong in thinking we have not specified the whole cause of an event when we have not wholly specified it. And there is not, as Mill and others have maintained, anything elliptical in the claim that a certain man's death was caused by his eating a particular dish, even though death resulted only because the man had a particular bodily constitution, a particular state of present health, and so on'.

As regards our evidence from singular causal statements Davidson says that—

The great majority of singular causal statements are not backed, we may be sure by laws in the way (C) is backed by (L). The relation in general is rather this: if 'a caused b' is true, then there are descriptions of a and b such that the result of substituting them for 'a' and 'b' in 'a caused b' is entailed by true premise of the form of (L) and (P); and the converse holds if suitable restrictions are put on the descriptions. If this is correct, it does not follow that we must be able to dredge up a law if we know a singular causal statement to be true; all that follows is that we know there must be a covering law. And very often, I think, our justification for accepting a singular causal statement is that we have reason to believe an appropriate causal law exists, though we do not know what it is.

Our ground for thinking that some causal law does cover a given case, and hence for thinking that a particular singular causal statement is true, is often knowledge of some generalization that normally holds—not necessarily a causal law, or even a first approximation to one.

Generalization like 'if you strike a well-made match hard enough against a properly prepared surface, then, other conditions being favourable, it will light' owe their importance not to the fact that we can hope eventually to render them untendentious and exceptionless, but rather to the fact that they summarise much of our evidence for believing that full-fledged causal laws exist covering events we wish to explain.[1]

This theory of cause and effect proposed by Davidson has some points of similarity with, and many points of difference from, the Navya-Nyāya theory. We first note some points of similarity.

[1]J. R. S. Wilson, *Emotion and Object*, pp. 9-11.

Points of Similarity

(1) The first point to be noted is that Davidson's use of 'cause' is similar to the use of *kāraṇa* in Navya-Nyāya and also in Indian philosophy in general. Davidson explicitly states that there is nothing elliptical in saying that one event caused another without specifying the *whole cause* of an event. This agrees with the Navya-Nyāya usage of *kāraṇa.*

(2) The more fundamental point of similarity is to be found in Davidson's requirement that if an event *u* causes event *v* then there must be properties F and G such that Fu and Gv, and that some law (L) holds to the effect that whenever an F event occurs it causes a G event. According to Navya-Nyāya also whenever an object is a cause of another it is a cause only in so far as it has a certain property.

But now the points of difference between Davidson's theory and Navya-Nyāya theory become manifest. We shall explain these points of difference which are more fundamental than the points of similarity.

Points of Difference

(1) We first note a difference in terminology. According to Davidson, only an event is a cause, whereas according to Navya-Nyāya, an object is a cause, although this object must be in time and must precede the other object which is its effect. Yet the concept of an object in time is different from that of event.

(2) The most fundamental point of difference between Davidson and Navya-Nyāya philosophers is that according to Davidson a causal statement is extensional whereas according to Navya-Nyāya it is not extensional. 'If some statement truly says that one event caused another any statement derived from this by substituting another description of one of the events referred to will also be true. Conversely, a causal statement can be true even if it refers to cause and effect by means of descriptions which cannot be generalized over, i.e., such that no causal law covers all events answering to just those descriptions.' According to Navya-Nyāya, however, in such cases the causal statement will not be true. Although it is true that this fire caused this burning it is false to say that this blue thing caused the burning because it is fire and not a blue thing which is the cause of burning. Thus the truth of a

singular causal statement depends upon the truth of the general statement of causation. This non-extensionality of the Navya-Nyāya theory of cause-effect relation is due to the requirement that when we *know* an object to be a cause of another we have to know both the objects under specific modes. Thus an object will be *known* as a cause only under a specific mode. Because substitutivity of identity is not truth-preserving in epistemic contexts, the cognized property of an object as a cause cannot in general be replaced by other properties even if they are co-extensive. Davidson, however, goes further and asserts that any property, co-extensive or not, may be substituted for the property in (C). It is not clear, however, whether Davidson is talking *only* of a causal law among events, or *also* of our knowledge or belief of causal laws. 'If this is correct, it does not follow that we must be able to dredge up a law if we *know* a singular causal statement to be true; all that follows is that we *know* there must be a covering law. And very often, I think, *our justification for accepting* a singular causal statement is that *we have reason to believe* an appropriate causal law exists, though we *do not know what it is.*' According to Navya-Nyāya, the modes under which objects are cognized as causes and effects automatically indicate a general law. But here we must be careful to note the special sense in which Navya-Nyāya philosophers understand a general law. There are modes which are properties of unique objects, properties which are not present in anything else. These properties when cognized roughly correspond to individual concepts in the sense of Carnap's *Meaning and Necessity*. A relation between two individual concepts is also stated in the form of a general statement. For example, if we are considering the cause of *this jar*, which is this pair of halves, the general statement which is implied is of the following form:

(P 1) Whenever this pair of halves is joined, this jar is produced.

Thus a general statement like (P 1) does not involve any generalization according to Navya-Nyāya. There is, however, a very close connection between a general statement of causation like (P 1) and the corresponding general statement involving generalization (P 2).

(P 2) Whenever *a* pair of pot-halves is joined, *a* pot is produced.

We shall discuss the connection between (P 1) and (P 2) in detail later.

We have already seen that according to Navya-Nyāya a cause and its effect must be located in the same object. This requirement shows the difference between the Nyāya concept and Davidson's (L). The Nyāya principle may be stated thus:

(NL) $(x)(n)(z)[(Fx \ \& \ t_x = n \ \& \ Rxz) \rightarrow (E!\,y)(Gy \ \& \ Ty = x + \in \ \& \ By \ \& \ Cxy)]$

Moreover, Navya-Nyāya does not accept the second conjunct of (L). i.e.

$(x)(n)[(Gx \ \& \ t_x = n + \in) \rightarrow (E\,!\,y)(Fy \ \& \ t_y = n \ \& \ Cyz)]$

For, according to Nyāya, there will generally be more than one cause of any effect, so that '(E!y)' of the consequent has to be changed to a mere '(Ey)'.

(P) of Davidson, too, has to be changed to suit (NL) thus:

$(Ex)(Fx \ \& \ t_x = 3, \ \& \ Rxb)$

III. ANALYSIS OF THE NAVYA-NYĀYA CONCEPT OF CAUSE

A cause, according to Navya-Nyāya, must have the following five features:

(1) It must be an antecedent of the effect, i.e. the cause must precede the effect in time. But this does not mean that the object which is the cause must cease to exist when the effect is produced.

(2) A cause must be an invariable antecedent of the effect. When we are talking of pots in general then invariability of the cause of a pot is to be understood as being uniformly present in all cases of pots. But when we are considering the cause of a particular object, and not of objects of a certain class, invariability does not mean anything other than mere presence at the time of the production of that particular object. Uniformity of presence in a particular instance is just presence. This is not surprising if we note that in a universe containing a single object an existential statement, '(Ex) Fx', is true if and only if the universal statement, '(x) Fx', is true.

(3) When we are considering the cause of a class of objects,

we have to follow, according to Navya-Nyāya, what is essentially the joint method of agreement in presence (*anvaya*) and agreement in absence (*vyatireka*). By varying the instances in such cases we can eliminate the variable factors and determine the invariable ones. According to Navya-Nyāya, this joint method is the only method of discovering invariable factors among the antecedents of an effect.

(4) The cause has to be an immediate antecedent of the effect in the sense that the cause of a cause of an effect is not automatically a cause of that effect. This is really a negative condition of a cause. Navya-Nyāya states a very important condition of a cause only negatively, which we shall explain now.

(5) An important negative condition of the cause is that it must not be 'otherwise established'. The meaning of the technical term 'otherwise established' requires careful examination. Viśvanātha classifies otherwise established objects into five types. We shall begin by examining these five types.

(a) The point to be noted here is that this negative condition is to be applied to cases where an object satisfies the condition of being an immediate invariable antecedent to the effect. We have already mentioned that according to Navya-Nyāya an object to be cognized as a cause has to be cognized under a specific mode. This mode is a property belonging to the object. If the object is an immediate invariable antecedent so also is its property, the limitor of cause-ness resident in the object. Yet it is clear that this property, even though an immediate and invariable antecedent, cannot be regarded as a cause, for possessing this property is a precondition of the object being regarded as a cause. For example, if an indeterminate perception of a stick is the effect, the stick is the cause only under the mode of the universal, stickness. The stickness, therefore, cannot be a cause of the perception of the stick.

(b) The second type of objects which Viśvanātha classifies as otherwise established and therefore excludes from being a cause of an effect is the property which cannot be established to be an immediate and invariable antecedent of the effect independently but only as belonging to some other object. We have already noted that according to Nyāya the only method of discovering a cause of an effect for empirical purposes is the method of agreement in presence and agreement in absence. Now if some object

is found to be concomitant invariably with the effect only because it is ontologically dependent upon some other object which is so concomitant, then the ontologically dependent object is to be regarded as otherwise established. For example, if the stick with which the potter moves his wheel to make a pot is a cause of the pot, then the colour of the stick is otherwise established, because the colour of the stick is an immediate invariable antecedent of the pot only because the stick is so. The immediate invariable antecedence of the colour of the stick is established only through the immediate invariable antecedence of the stick itself. There is no independent way of establishing such antecedence of the colour of the stick. Hence the colour of the stick is otherwise established.

(c) The third type of cases of otherwise established factors is based on a Navya-Nyāya principle of causation. According to Navya-Nyāya, no object can be regarded as a cause except under a specific mode. Now the principle is that if an object has been found to be an immediate and invariable antecedent of an effect only under the mode of being a cause of something else, then that object cannot be a cause also of that effect. The example given here is that of *ākāśa* as a cause of a pot. It may be argued that a pot cannot be produced if there were no space and so space should be regarded as a cause of the pot. Viśvanātha's argument is that *ākāśa* is found to be an immediate and invariable antecedent of the pot only as a cause of sound, and is, therefore, not also a cause of the pot.

The principle by which Viśvanātha establishes that factors which apparently qualify for being an immediate and invariable antecedent have yet to be excluded from being the cause is based on the mode by which the immediate and invariable antecedence of the factor is established by the joint method. If a factor cannot be proved to be an immediate and invariable antecedent independently of something else, then that factor is otherwise established. So also when a factor is an immediate and invariable antecedent *only* as the cause of something else then the factor is otherwise established for the effect under consideration.

(d) A cause of a cause is not, in general, a cause. This is because the immediate invariable antecedence of the cause of the cause can be discovered by the joint method of agreement and difference only through the immediate invariable antecedence of

the cause. For example, the father of a potter is an invariable antecedent of a pot made by the potter, only because he is an invariable antecedent of the potter who is the cause of the pots. So the potter's father is otherwise established for the pots made by the potter.

There is an important point to be noted in this connection. A cause of a cause does not necessarily cease to be an immediate antecedent of the effect. For example, the potter's father may be present invariably when the potter makes his pots on a particular day. So the father is an immediate antecedent of the pots made by his son as much as the son himself although he cannot be regarded as their cause. Yet it cannot be a general rule that a cause of a cause cannot be a cause of an effect. For there are cases where a cause of a cause is also a cause of an effect and its immediate and invariable antecedence is established independently of the cause of the effect. The difference between the two types of cases where a cause of a cause is otherwise established and is therefore not a cause and where the cause of a cause is also a cause may be explained by the following two diagrams:

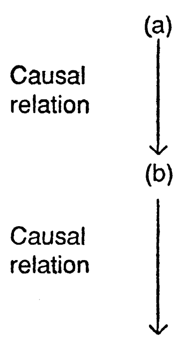


Fig. 1

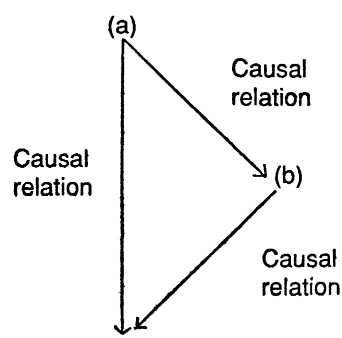


Fig. 2

In Fig. 1 (e) is the effect, (b) is its cause, and (a) is the cause of (b). The immediate invariable antecedence of (a) is established only through the immediate invariable antecedence of (b). In Fig. 2, however, (a) is proved to be an independent and invariable antecedent of (e) independently of (b) which is also proved

to be so independently. For example, when a wood-cutter fells a tree by an axe, the axe is proved to be a cause of the felling of the tree by the joint method. But so also is the contact of the axe with the tree. The contact of the axe with the tree is, however, an effect of the axe and is established by the joint method. Thus we have two causes of the felling of the tree independently proved by the joint method. Here the axe is (a), the contact of the axe with the tree is (b), and the felling of the tree is (e). Thus whether a cause of a cause is also a cause or not has to be determined by noticing whether the immediate invariable antecedence of the cause of the cause can be estalished independently of the cause itself. In the case of the potter's father who happens to be present on one day when the potter is making his pots is not invariably present whenever the potter is making his pots. So his invariable antecedence is not established by the joint method.

IV. CLASSIFICATION OF CAUSES

According to Navya-Nyāya, causes are classified into three kinds, (i) inherent cause (*samavāyi kāraṇa*), (ii) non-inherent cause (*asamavāyi kāraṇa*) and (iii) auxiliary cause (*nimitta kāraṇa*).

(i) According to Navya-Nyāya, when an effect is produced it is produced *in* its cause. This cause is called the inherent cause. Thus in the case of a pot, its two halves are its inherent cause as the pot is produced as inhering in them. Here we should note a fundamental point of difference between the Sāṁkhya concept of a material cause and the Navya-Nyāya concept of inherent cause. According to Sāṁkhya, an effect is the manifested state of the material cause and this manifestation is a process of continuous transformation of the cause which is its matter. Thus every such cause is a material cause of the effect. But, according to Nyāya, objects of different categories may be effects which, therefore, do not, in general, require matter or material cause. According to Sāṃkhya even consciousness of an object is a modification of the *buddhi* which is its matter. But, according to Navya-Nyāya, consciousness is a quality of the self which is its inherent cause but not its material cause. According to Navya-Nyāya, we cannot talk of a cause of an effect unless both

the cause and the effect are cognized under specific modes. So when a pot is regarded as an effect the limitor of the effect-ness is pot-ness. So also when the pot-halves are regarded as inherent causes of the pot, they are cognized under the mode of pot-half-ness which is the limitor of cause-ness. Hence the pot-halves are not inherent causes of the pot as a kind of substance (thing) but only as pot-halves.

(ii) A non-inherent cause is a cause which directly or indirectly inheres in inherent cause.

(a) As an example of direct inherent we may take the contact of the two-halves as the non-inherent cause of the pot. The pot inheres in the pot-halves (its inherence causes) in which their contact, too, inheres. Thus the contact of the two halves inheres in them which are the inherent causes of the pot.

(b) As an example of an indirect relation between the inherent cause and the non-inherent cause we may take the colour of the pot and the colour of the pot-halves. It is established by the joint method of agreement that the colour of the pot is an effect of the colour of the two halves. The colour of the two halves inhere in them; the colour of the pot inheres in the pot which in its turn inheres in the halves in which their colour inheres. This relation is obtained by composition from three relations. This composition of relations may be symbolically represented as follows:

(Colours of the pot-halves) I (pot-halves)
(Pot-halves) $\breve{I}$ (pot)
(*Colours of the pot-halves*) I/$\breve{I}$ (*pot*)
(*Colour of the pot*) I (*pot*)

Thus the colours of the pot-halves (the non-inherent causes) are co-present with their effect (the colour of the pot) by being located both in the pot.

(c) Causes other than the inherent and the non-inherent causes are all lumped together in the category of auxiliary causes. These include the agents, if any, of actions and other supporting factors. A fundamental difference between the Sāṁkhya and Nyāya view of cause can be brought out by considering the causal relation between a seed and a plant. According to Sāṁkhya, the seed contains the plant within itself potentially and

develops into the plant continuously. Thus the seed is the material cause according to Sāṁkhya. The Navya-Nyāya philosophers, however, analyse this relation in a completely different manner. The plant at any stage of its development inheres in its parts which are its inherent causes. The conjunction of the parts is the non-inherent cause of the plant. The seed which is also necessary for the plant is only an auxiliary factor. Thus the process of continuous development of the plant from the seed is analysed by Navya-Nyāya philosophers into discrete momentary stages and at each stage the plant is conceived as a whole made up of parts just like a pot.

(d) From these three types of causes which are *generally* present when an effect is produced, one particular cause is selected as the cause par excellence, and this is identified with the instrument of production of the effect. The axe is the instrument of cutting a tree, eyes are the instrument of seeing and so on. According to Navya-Nyāya philosophers, no effect can be produced without any instrument. Although Navya-Nyāya philosophers differ among themselves in understanding the precise nature of excellence of the instrumental cause of an effect, still the generally held view is that the instrumental cause is the cause par excellence by virtue of possessing an operation (*vyāpāra*). This *vyāpāra* is technically defined as an effect of the instrumental cause which is also at the same time a cause of the effect of the instrumental cause. Thus the operation is at once an effect of the instrumental cause and a cause of the effect of the instrumental cause. This situation is diagrammatically represented in Fig. 2 above.

(e) The Navya-Nyāya concept of cause is fundamentally different from the concept in other systems because it involves will and knowledge in every case. Navya-Nyāya distinguishes between general causes and specific causes of an effect. The general causes are causes which are necessary for the production of any effect, whereas specific causes are necessary for making the effect a specific effect different from other effects. The general causes which are necessary for effects in general include time, as also divine will and knowledge, merits and demerits of men and so on. This conception of general causes distinguishes the Navya-Nyāya theory from the Buddhistic theory of momentariness. If all reals are momentary and ontologically different from each other, con-

ditions which are necessary for the production of any event must be a mental construction like every general property. According to Navya-Nyāya philosophers, a general cause is an object which produces an effect under the mode of being an effect. We have already seen that according to Navya-Nyāya philosophers, both causes and effect have to be cognized under specific modes. A general cause is different from a specific cause only because the effect of the general cause is conceived under the most general mode of being an effect, whereas the effect of a specific cause is to be cognized under the mode of some specific features. Thus a general cause is cause of an effect as such whereas a specific cause is the cause of an effect under more specific modes. As every specific effect is also an effect, every specific effect, too, requires all the general causes for its production. In reality there is no such thing as an effect in general; every object, whether a cause or an effect, is different from every other object, although every object, too, shares common features of varying generality, with other objects. The difference between general causes and specific causes is thus to be found in the different modes under which the effect is cognized as an effect.

Among the general causes of an effect as such are divine will and divine knowledge. According to Navya-Nyāya God's will is eternal, so also is His knowledge. Moreover, God's will is one will about everything that is produced, so also is His knowledge is one knowledge about everything that is, was or will be. This one will of God which is eternal is one of the general causes of anything that is produced. According to Navya-Nyāya, God is not omnipotent in the sense that He creates everything, but only in the sense that He produces every effect. According to Navya-Nyāya, there are many eternal objects which are not created at all. But whatever is created requires divine will and knowledge as its causes. Thus even natural phenomena like fire burning, rivers flowing, wind blowing, etc. all require divine will and knowledge as their causes.

Divine will and knowledge being general causes are not sufficient to produce any effect which has also specific conditions. Whatever is produced in this universe also requires merits and demerits of men as its general causes. This shows that the destiny of man plays an important causal role in the creation of the

universe. This puts man almost on a par with God in so far as creation is concerned.

(f) Navya-Nyāya deals with the problem of plurality of causes, specially from the epistemological point of view. According to Navya-Nyāya, one can infer validly from effects to causes, yet this process of inference will not be generally valid if one and the same effect were produced by different causes on different occasions. For example, fire may be caused by rubbing two pieces of wood, or by sun rays through a lens. In such a case one cannot infer the presence of either two pieces of wood or lens from the presence of fire. Thus to validate inferences of this type Navya-Nyāya eliminates the possibility of plurality of causes by two methods, both of which are equally successful. (1) One way is to specify the effect. Instead of considering fire as an effect under the mode of fire-ness, it is necessary to distinguish between different types of fire produced by different types of causes—flint-fire, and so on. Thus by specifying the effect the problem of plurality of causes can be solved. (ii) It is also possible to generalize the cause. For example, instead of regarding flint, lens and other causes of fire, we may regard flint-or-lens as the cause of fire. The cause being regarded as being under this general mode will also solve the problem.[2]

Here we shall discuss a controversy on this point between Mīmāṃsā and Navya-Nyāya philosophy.

Mīmāṃsā : Fire can be produced by different causal conditions—grass, flint, crystal. All these produce fire because they have the same power. Even though the fire produced by the different causal conditions are different kinds of fire, still all fires are of the same kind as fire. And the causal rule is that effects of the same kind are produced by the causes of same kind. This rule is justified by noting that if the different types of fire were held to be produced by different kinds of causes, there will be no cause for fire as such. Moreover, there is no reason for specifying the effects ignoring the common cause. For explaining only observably different kinds of fire—log-fires, lamp-fires, etc. different powers are to be postulated.

Objection : If plurality of causes is not admitted, then there would be no inference of a specific type of cause from a specific

[2]Haridāsa, *Kusumāñjalī*, pp. 34ff.

type of effect, or from the absence of a specific type of effect to the absence of a specific type of cause. If effects are to be regarded as of one kind, then in the absence of a specific type of cause the effect could be produced by the presence of another type of specific cause.

ANSWER: If different types of fire are to be regarded as being caused by different types of causes, then different types of smokes should be regarded as being produced by different types of fires. But then it will be impossible to come to know that smoke in general is pervaded by fire in general, for there will be neither smoke in general nor fire in general.

GAṄGEŚA: If power is produced by exactly the same causal conditions that produce the thing which has it, then every blade of grass, every pair of pieces of flint, every crystal will have a different power, for the conditions that produce one blade of grass do not produce the next blade. So there will have to be an infinite number of powers belonging to an infinite number of blades of grass alone. Where a fire is made from grass, many blades of grass are usually used. Unless we assume that there is a fire produced by a blade of grass we shall have to hold that different powers resident in different blades of grass co-operate to produce one single flame. This co-operation of many powers to produce a single effect is unintelligible. Instead of this assumption of an infinite number of powers resident in an infinite number of blades of grass, which co-operate mysteriously to produce one effect, it will be simpler to hold that grass is the cause of one type of fire characterised by a universal, and so on. So instead of having a power belonging to each and every particular condition, there will be one type of causal condition as cause of one type of effect.

OBJECTION: We observe fire produced by different types of causal conditions, but we do not perceive the different universals belonging to the different types of fires.

ANSWER: We do perceive such differences. For example, for a sacrifice we need fire caused by flint. No other fire will have the required effect. But any fire caused by flint will do. Thus we have to admit specific types of effects produced by specific types of causes, and as limiting properties of cause-ness and effect-ness we shall have to admit specific universals.

OBJECTION: If this is so, would not there have to be a general causality to account for general effects, over and above the specific causality for specific effects?

ANSWER: General causes of fire in general will include hot particles, contact among them, and nurturing (e.g. belonging to grass). But these general causes cannot produce any fire by themselves, for each fire produced is of some specific nature. So, over and above the general causes there must be specific causes such as grass or flint or crystal, etc. For the rule is: without the help of specific causes the general causes do not actually produce any effects.

(g) Some laws of causation have been formulated by Navya-Nyāya philosophers to justify primarily their ontological theories. (i) One principle concerns the causation of size or magnitude. The law is that size causes size which is greater *of its own kind.* This means that a big size causes a bigger size. Thus the maximum size cannot be cause of any size as there is no bigger size than the maximum size. So also the smallest size would produce smaller than the smallest size which again is impossible. So the smallest size, e.g. the size of atoms cannot produce any size. So when two atoms combine to produce a dyad of a bigger size, the sizes of the constituent atoms cannot be the cause of the size of the dyad, for atomic size would have produced only a smaller size but not a bigger size. So the size of the dyad consisting of two atoms is produced, not by the sizes of the atoms, but by their number. The size of the dyad, therefore, is causally determined by the number of the atoms, not by their sizes.

(ii) A second principle of the causal relation relates to the destruction of perceptible qualities of substances having the maximum size. According to Navya-Nyāya, sound is a quality of *ākāśa* which has the maximum size. Sounds, again, are non-eternal, they arise, endure and then pass out of existence. One school of Navya-Nyāya philosophers uphold the wave theory of propagation of sound. According to this theory, sound which originates from the striking of two things is propagated in the form of waves from its origin. One sound wave is followed by another sound wave which destroys the former. Otherwise the first wave would have continued even when successive waves

followed. This would have made sound indestructible which is against the Nyāya theory. So the principle here is that all perceptible qualities of substances of maximum size are destroyed by their perceptible successors. Thus one sound wave, which is a perceptible quality of *ākāśa*, a substance of maximum size, is destroyed by the succeeding sound wave which is again perceptible (audible) and is a quality of the same *ākāśa*.

(h) The Navya-Nyāya philosophers use the theory of cause to explain the nature of dispositions which are denoted by dispositional terms.

There is, however, a fundamental difference in the treatment of the topic between Western philosophers and Indian philosophers. According to Western philosophers, the problem of dispositional terms like 'soluble' is essentially connected with unsatisfied conditions leading to the problem of counterfactual conditionals. For example, the sentence 'Sugar is soluble in water' cannot be simply 'sugar dissolves in water', for even if a lump of sugar is not placed in water the sugar remains soluble in water. So to explicate the meaning of 'soluble' it is necessary to take into account the counterfactual conditional 'if this lump were put in water, it would have dissolved'. In Indian philosophy the problem of dispositional terms is conceived differently; 'sugar dissolves in water' is a general statement of causality 'water dissolves sugar'. Now the problem is: if sugar is coated with some waterproof material it will not dissolve even when put into water. Thus the problem of dispositional terms is regarded as a problem of causality in Indian philosophy. A statement involving a dispositional term is regarded simply as a general causal statement. The problem is to determine the exact conditions under which the causal connection holds.

The general solution offered by different systems is to accept the Nyāya concepts of obstructor and exciter. An obstructor is an object whose absence is necessary for the production of the effect. Yet it is found that when an exciter is present the effect is produced even though the obstructor, too, is present. Thus the presence of an obstructor is not sufficient to prevent the production of the effect. Symbolising 'the effect is produced' by 'P' and 'an obstructor is present' by 'O', and 'an exciter is present' by 'E' we have the following equivalent implications:

I. $\{O \supset (-E \supset -P)\} \equiv \{O \supset (P \supset E)\} \equiv \{(O \,.\, P) \supset E\}$
$\equiv \{(O \,.\, -E) \supset -P\}$.

In using the theory of cause in explaining dispositions the Navya-Nyāya philosophers refute the theory of the Mīmāṃsakas who admit potentiality or power as a separate ontological category to explain dispositions or potentialities. The stock example in this context is burning which is caused by fire. When a moon-stone is present then fire does not burn. If, however, a sun-stone is present along with the moon-stone fire burns. The moon-stone is a negative condition whose absence is necessary for burning. The moon-stone is, therefore, an *obstructor* (*pratibandhaka*) for it is sufficient to prevent the production of the effect. There is, however, a type of object which can neutralise the action of an obstructor; such an object is called an *exciter* (*uttejaka*). So an effect may be produced even in the presence of an obstructor if there is an exciter neutralising the operations of the obstructor. The Mīmāṃsakas consider the following three cases :

(a) Fire alone is present and burning is produced.
(b) Fire and moon-stone are present; no burning.
(c) Fire and moon-stone and sun-stone are present; there is burning.

The Mīmāṃsakas seek to explain these cases by postulating an ontological reality which is called power (*śakti*) in the cause producing the effect. Thus according to them, a cause produces an effect if and only if its power to produce the effect is operative. In case (b) this power is rendered ineffective by the moon-stone. In (c) the sun-stone neutralises the effects of the moon-stone and so the power in the fire, becoming effective again produces burning.

The Nyāya argument against this Mīmāṃsā position takes two forms—old and new. We shall explain both these forms of the Nyāya theory.

THE OLD NYĀYA THEORY

There is no need for this hypothesis of a power or causal efficacy. It is necessary to take into consideration four cases which are possible. Taking 'O' to stand for 'an obstructor is

present', and 'E' to stand for 'an exciter is present' the four cases can be stated as follows :

(O . E) (a) the obstructor is present and the exciter is present.
(O . —E) (b) the obstructor is present and the exciter is absent.
(—O . E) (c) the obstructor is absent and the exciter is present.
(—O . —E) (d) the obstructor is absent and the exciter is absent.

Only in case (b) fire does not burn and it is the only case where the condition —(O . —E) is absent. Thus we can establish the causal connection of fire and burning without postulating any power of burning in fire by simply holding that —(O . —E) to be a necessary condition of burning.

OBJECTION: This Nyāya theory involves a vicious circle. An obstructor is the counterpositive of an absence which is a cause, and the absence of a cause is an obstructor.

ANSWER: Though an obstructor is a counterpositive of an absence which is a cause, still it is not the absence of a cause *as* cause which is an obstructor, but rather the absence of the object, in this case the moon-stone. That is, the limitor of causeness is not *absence of obstructorness*, but *absence-of-moon-stoneness*. Thus there is no circularity.

OBJECTION: An absence cannot be a cause.

ANSWER: But the validity of Vedas, for instance, is due to the absence of defects in their author, and that absence is thus accepted as the cause of their validity.

The Mīmāṃsakas argue that the Nyāya theory cannot be correct, for there is no such thing as a real, qualified (*viśiṣṭa*) object and so there is no possibility of being aware of the absence of such an entity. According to Nyāya, there is no additional qualified entity over and above the qualificant, the qualifier and their relation. If we take the absence of each of these as a cause, then in some cases absence of obstructor, in some cases, the presence of the exciter, and in some cases both the obstructor and the exciter are necessary conditions. But neither the absence of the moon-stone nor the presence of the sun-stone, nor the

moon-stone and the sun-stone together, are causes of burning, since none of these is *always* present when burning occurs.

The reply of the Navya-Nyāya philosophers to the Mīmāṃsā objection is based on a distinction between ontological reality and its cognition. For even if ontologically there is no qualified object over and above the qualifier, qualificant and the relation between them, still that does not mean that epistemically there will be no difference. In awareness *what* is known (the ontologically real) is as important as the mode under which the real is known. So an absence differs from another absence if their counterpositives are different; but this is not the only reason why one absence differs from another. Even when the counterpositives of two absences are ontologically the same object, they may yet differ if the limitors of the counterpositivenesses differ. Thus even though both a qualified object and the pure object (without qualification) are identical ontologically, still their absences are not the same, for the limitor of the counterpositiveness of the absence of a qualified object is the property of being qualified, while the limitor of the counterpositiveness of the same object not qualified is just object-ness. The absence of (a)-as-qualified-by-(b) is known uniformly in all three of the following distinct cases:

(i) where (a) is absent
(ii) where (b) is absent
(iii) where both (a) and (b) are absent.

It is important here to note a difference between *absence*-of-a-qualified-object (*viśiṣṭâbhava*) and the absence-of-both (of two objects, *ubhayâhava*). The absence of a qualified object and the absence of two objects *a* and *b* obtain in exactly the same three cases:

Absence of both *a* and *b* obtains
(i) where *a* is absent
(ii) where *b* is absent
(iii) where both *a* and *b* are absent,

which are exactly the same as in the case of absence of a-as-qualified-by-b. So a question may arise whether a-as-qualified-by-*b* and *a*-and-*b* are epistemologically the same. According to

Navya-Nyāya philosophers, the two absences are still different because there counterpositives are different. There is a fundamental differences between *a*-as-qualified-by-*b* and *a*-and-*b* even though ontologically they are similar. Just as in the ontology there is no qualified object, so also there is nothing in ontology corresponding to the conjunction i.e. to *both* over and above the two objects *a* and *b*. Both *a* and *b* are different from them separately only through their cognitions. To cognize both *a*-and-*b* is merely to have one cognition referring to the separate objects, *a*-and-*b*. This cognition of two objects is caused by two cognitions of the two objects separately. In order to know both *a*-and-*b* it is *necessary* to know first *a* and also to know *b*, i.e. to have two successive cognitions of the individual objects. It is only in the resultant cognition, that one knows *both a* and *b*. Thus there is nothing in the ontology corresponding to *both*.

In spite of this similarity of a qualified object and a compound conjunction of objects, their fundamental difference remains, which may be explained in symbols thus :

(a) *both a* and $b = (\in x)(Fx) . (\in x)(G x)$

where a is an F, and b is a G.

For example a cow *and* a goat.

(b) a-as-qualified-by-b $= (\in x)(Fx . Gx)$.

There cannot be any cow qualified-as-a-goat, because there is nothing in which both cowness (F) and goatness (G) inhere. Thus to be a qualified object, both the qualificandum and the qualifier must have a common location (*samānādhikaraṇa*), and through which alone they have the qualification relation.

Thus although the negations of a qualified object and a compound object hold in exactly the same cases, still cognition of a compound object (both *a* and *b*) is fundamentally different from the cognition of a qualified object (*a* as *b*).

Now we return to the criticism of the Mīmāṃsā theory of *śakti*. Power (*śakti*) as postulated by the Mīmāṃsakas is an unobservable object, so it cannot be known uniformly in the different types of cases where fire burns.

MĪMĀṂSĀ OBJECTION: What is the nature of the absence of the obstructor when the obstructor is present along with the

exciter? It cannot be prior or posterior absence, for the counterpositive (the obstructor) is present. It cannot be absolute absence either, for absolute absence is eternal, it cannot be present sometimes and absent sometimes. And the assumption of a fourth type of relational absence is not justified.

NYĀYA REPLY: Even though absolute absence is eternal, yet it is not always perceived in its locus, as the relation between the locus and the absence is not eternal. When a thing is present in a locus, its absolute absence, though present there is not present in that locus in the relevant relation for the relation between the absolute absence and the locus gets broken when the counterpositive of the absence becomes present in the locus.

THE NEW NYĀYA THEORY

The New Nyāya theory examines the Mīmāṃsā argument by inference to prove power as an independent category. The inference is of the following sort:

Occurrences of fire are of two types. In one type of occurrence fire burns, in another type of occurrence fire is causally ineffective (when an obstructor is present).

INFERENCE: Fire possesses a property which explains why the causally ineffective sort of fire (e.g. with a moon-stone in one's hands) does not occur—(why one does not get burnt); because fire is in the effective state; just as a sharp axe must have some property which explains why it has different effects in use from a dull axe.

The Mīmāṃsakas claim that the inference is valid and the property in question is the possession of power (*śakti*).

THE NYĀYA OBJECTION: The alleged power is the effect of the causes which produce fire. The causes of the power to produce fire and the causes of fire are exactly the same. So even when the obstructor (the moon-stone) is present, power, too, must be present, since fire itself is present.

MĪMĀṂSĀ REPLY: Even though the power is the effect of the positive causes, still when the obstructor is present it remains unmanifested.

GAṄGEŚA: The Mīmāṃsā argument is not valid. For the same argument will serve to prove an infinite number of positive

properties besides the power in question. This argument can be stated thus :

Fire possesses an imperceptible positive property other than the power (already proved) that explains why the causally ineffective sort of fire does not occur; because fire is in the effective state.

MĪMĀṂSĀ REPLY: Since the fact of burning is explained by the first power to be inferred, there is no need to infer any additional imperceptible positive properties to explain the same facts.

GAṄGEŚA: But even if the power is not inferred, still all the facts about burning can be explained.

The point that Gaṅgeśa is making here that inferring an imperceptible power to explain perceptible facts is not justified; in any case such an imperceptible power cannot help in explaining perceptible facts.

MĪMĀṂSA OBJECTION: The Nyāya philosophers prove the existence of God who is imperceptible in order to explain the creation of the universe. So also the Mīmāṃsā philosophers infer one and only one imperceptible positive property, power, and not many such properties.

GAṄGEŚA: The Nyāya inference proves a maker (of the world) as agent (*kartṛ*), not as God or as some second agent. Effects such as a piece of cloth do have two agents, since the weaver is the agent of the cloth as cloth, while God is the agent of the cloth as effect (God is the agent of every effect). But there is no causality residing in both. Just so, in the case of the Mīmāṃsā thesis, there is a causality explaining why the fire burns (i.e. why causally ineffective sort of fire does not occur), but not as some positive imperceptible property. Moreover, every positive effect must have an inherent cause, so another power has to be inferred in which the first power can inhere. So there must be infinite regress of powers of more and more complexity. And finally, the example in the Mīmāṃsaka inference is not valid, for the sharpness of the axe is not imperceptible—it is due to the superior metal of which it is made, which is perceptible.

CHAPTER 7

REFERENCE, SENSE, MODES OF PRESENTATION: FREGE AND GADĀDHARA

I. INTRODUCTION

The term 'reference' is used in philosophy in various senses. We shall distinguish here between two entirely different senses as found in the two groups 'subject-sense-reference' and 'expression-sense-reference'.[1]

In one sense we say that Mr. So and So uses the word to refer to this object. In the other sense we say that the word refers to this object. In what follows we shall be primarily interested in the second sense.

In order to understand this sense of reference it is necessary to contrast it with the notion of sense first introduced in Western philosophy by Frege in his 'Über Sinn und Bedeutung'. He introduced the distinction in his theory of meaning in order to give an adequate account of how language functions. We note here the following points about his theory.

(i) The immediate purpose for Frege's distinction between sense and referent of a name is to offer an explanation of the difference in 'cognitive value' of different types of true identity statements. (ii) To achieve this end, he first introduces the concept of 'a mode of presentation of the referent' as distinguished from the concept of the referent of a name. (iii) In order that a name may refer to whatever it refers to, there must be a 'reason for application' of the name. (iv) A sense of a name illuminates the nominatum, "if there is any, in a very one-sided fashion. A complete knowledge of the nominatum would require that we could tell immediately in the case of any given sense whether it belongs to the nominatum. This we shall never be able to do". (v) Sense determines reference which is a function of sense. (vi) Are both sense and referent of a name known when it is spoken?

[1]Christian Thiel, *Sense and Reference in Frege's Logic*, p. 146

(vii) "If words are used in the ordinary way, what one intends to speak of is their reference".

I shall discuss all these points together.

II. IDENTITY STATEMENTS

(1) D. Wiggins in his paper 'Identity Statements'[2] understands Frege's distinction between sense and reference as a distinction of '*how* an expression signifies' from '*what* it signifies'. Then he quotes Frege's statement : 'If words are used in the normal way what one intends to speak of is their reference'. He goes on to argue then the sentence "The morning star = the evening star" is about the planet Venus. Why then *the ways* in which the referents of 'the morning star' and 'the evening star' are determined affect *what is* said in the sentence? In short, if it is the referents of our words which we can speak of in a sentence, then how can the sense be a part of its content?

Wiggins illustrates this difficulty by an example. When we say about a man that he needs a drink, it does not affect whether we refer to him by 'the man in the Wellington boots' or 'the man with the discontented expression'.

Similarly in 'the morning star = the evening star' what is said is that the planet (referred to by the expressions) is identical with itself. And if all the identity statements speak about the self-identity of something, then how can some identity statements be logically guaranteed $(a=a)$ and some are not $(a=b)$? Thus Wiggins concludes that 'this relational analysis is simply not suited to explain how the *manner of reference* affects content.'[3]

The point on which Wiggins criticises Frege's theory of sense and reference is that the sense or 'the manner of reference' does not in any way affect the content (of a sentence).

He writes, 'the sense-reference distinction explains admirably why I must be in possession of interesting information to say that the evening star is the morning star..... But how is this information *built into what I say* if the sentence is construed in the normal way as about the planet?' Thus Wiggins' criticism of Frege's theory rests on the point that we cannot get any information

[2]*Analytic Philosophy*, ed. Butler.

[3]*Ibid.*, p. 59.

from *what is said* in a sentence, i.e. on a fundamenal distinction between a speaker's and a hearer's standpoint.

But Wiggins' criticism is beside the point. Frege himself has pointed out that what we talk about in a sentence are the referents of the words (which are the constituents of the sentence). Dummett also writes, for example, "When I say, 'Mont Blanc is the highest mountain in Europe', it is....the actual mountain, with all its snow and ice that I am speaking of . . . and...it is whether that very object does or does not fall under the concept 'highest mountain in Europe'—a concept as much part of the real world, of the realm of reference, as is the mountain itself—which determines whether what I say about it is true or false."[4]

Thus Frege also says that the statement 'The morning star= the evening star' is about the planet Venus: what he says in addition to this is that there is an informative content in the sentence. But this informative content for Frege is not a part of the reference of the sentence (or as Wiggins says, what is signified by the sentence). On the other hand we get the information from the thought which is the sense of the sentence, and the sense of the sentence is a function of the senses of its components.

According to Frege, the sense of an expression does not merely consist in determining the reference that it has. Frege first introduces the notion of sense in addition to the notion of reference in order to explain the difference in the informative content between the identity statements '$a=a$' and '$a=b$' when '$a=b$' is true. He points out 'A difference (in the informative content) can arise only if the difference between the signs corresponds to a difference in the mode of presentation of that which is designated.' "It is natural now to think of there being connected with a sign (name, & combination of words, letters), besides that to which the sign refers which may be called the reference of the sign, also what I should like to call the *sense* of the sign, wherein the mode of presentation is contained.... The reference of 'evening star' would be the same as that of 'morning star', but not the sense".[5]

Hence in order to understand the informative content of 'the morning star=the evening star' we have to grasp the thought

[4]*Frege: Philosophy of Language*, p. 197.

[5]'On Sense and Reference', *Translations*, p. 57.

expressed by the sentence, which is determined by the senses of its constituent expressions. The sense of an expression, therefore, not only determines the reference that it has, it also helps to determine the sense (thought) of the sentence in which that expression occurs.

The difference in the cognitive (or informative) content of the sentence 'the evening star=the evening star' can be understood by understanding two different thoughts expressed by the sentences. The statement 'the evening star=the morning star' gives some information (unlike the statement 'the evening star=the evening star') in that, the sense expressed by the two expressions 'the morning star' and 'the evening star' are different. A person who did not know previously the truth of the statement, learns something new by *understanding its sense* and by being told that the statement is true.

The difficulty of Wiggins in understanding Frege's explanation of the difference in the informative content of two types of identity statements, lies in the fact that he concentrates only on the point, 'what is said' (reference) in a sentence. He writes, "knowing the sense of a sentence *S* (i.e. understanding a thought) is knowing the truth grounds of what is said by any utterance of *S*." But he overlooks the other point—i.e. the information conveyed by the sense (thought) of a sentence.

Frege writes in the end of his "On Sense and Reference"— "When we found '$a=a$' and '$a=b$' to have different cognitive values, the explanation is that for the purpose of knowledge, the sense of the sentence, viz., the thought expressed by it, is no less relevant than its reference, i.e. its truth value. If now $a=b$, then indeed the reference of 'b' is the same as that of 'a' in '$a=a$'. In spite of this, the sense of 'b' may differ from that of 'a', and thereby the thought expresssed in '$a=b$' differs from that of '$a=a$'. In that case the two sentences do not have the same cognitive value. If we understand by 'judgement' the advance from the thought to its truth value, as in the above paper, we can also say that the judgements are different."[6]

Leonard Linsky in his book *Referring*[7] comments, 'if we allow ourselves no more apparatus than the apparatus of proper names

[6] *Ibid.*, p. 78.

[7] Leonard Linsky, *Referring*, p. 130.

and definite descriptions, sense and reference, and the expression 'x = y' we just cannot give an undistorted account of what the astronomers discovered (about the evening star and the morning star). . . .'

Linsky states Frege's theory as follows : "It is said to be an astronomical fact of some importance that—

(1) The morning star = the evening star.

. . . Frege said that it was the two expressions 'the morning star' and 'the evening star' had the same reference, that (1) was true, and because these two had different senses that (1) was not a trivial thing to say."[8] He then raises the objection, "the two expressions 'the morning star' and 'the evening star' do not refer to the same thing. For the first refers to the planet Venus when seen in the morning before sunrise. The second phrase refers to the same planet when it appears in the heavens after sunset. Do they refer, then, to the same 'thing' ?"[9]

Even if the expressions 'the morning star' and 'the evening star' are regarded as names and not as definite descriptions, the objection cannot be avoided. For "the name the 'morning star' does not refer simpliciter to the planet Venus. It does not refer to the planet in the same way in which the demonstrative 'that' might be used to refer to the planet on some occasion. The names 'the morning star' and 'the evening star' are not that sort of 'referring expressions'."

"It would be incorrect for me to say to my son . . . 'Look to the place where the sun is rising and you will see the evening star', for that is not what the star is called when seen in the east before sunrise."[10]

Now we attempt to give an answer to this objection.

Here the problem is, *how* the reference of the expressions 'the morning star' and 'the evening star' is to be determined.

By the expression 'the evening star' (even when it is considered as a name) Linsky understands the planet which *at present* can be seen in the Western sky in the place where the sun has set.

That is why, he thinks that it would be wrong to tell someone

[8]*Ibid.*, p. 127.
[9]*Ibid.*, p. 128.
[10]*Ibid.*, p. 128.

'Look to the place where the sun is rising and you will see the evening star'.

If, on the other hand, we understand by the expression 'the morning star', 'the planet which can be seen in the eastern sky in the morning before sunrise for certain months in a year', and by 'the evening star', 'the planet which is seen in the western sky in the evening, after sunset, for certain months in a year' then it would not be wrong to say to someone 'look to the eastern sky where the sun is rising and you will see the evening star'. For the sentence would be taken to mean 'the planet now seen in the eastern sky is the planet which is seen in the western sky for some other months in a year after sunset'. It would not be a mistake to say 'the evening star is seen in the eastern sky before sunrise', for the sentence would mean, 'the planet which is seen only in the evening in the western sky after sunset (for some months) is seen only in the eastern sky before sunrise for some months in a year.'

It would also be possible for us to say, pointing to the morning star in the eastern sky, 'that is the evening star', for it would be taken as meaning 'that is the planet which is seen only in the western sky in the evening after sunset for some months in a year.'

Thus the reference of both 'the evening star' and 'the morning star' would be the same, and the objection can no more be raised that a theory having 'no more apparatus than the apparatus of proper names and definite descriptions, sense and reference, and the expression '$x=y$' . . . cannot give an undistorted account of what the astronomers discovered'.

After meeting these points raised by Wiggins and Linsky we shall now make our own comments on Frege's theory. Frege *says* that 'the sense of a sentence, viz. the thought expressed by it, is no less relevant than its reference' for the cognitive significance of a sentence, but he does *not explain* more specifically in what way it is so relevant. One way to do this is to say that *both* the sense and the reference of an expression are cognised, that the mode of presentation of the object is a part or element of *what* is cognised just as much as the object itself. Dummett seems to accept this position when he says that Frege's "argument is set out in terms of the notion of 'cognitive value', that is, information *content* . . . ."[11]

[11]*Frege: Philosophy of Language*, p. 94.

Thus both *the mode of presentation of the object* and *the object* are elements of the content cognised or communicated.

We shall now examine if this interpretation of Frege can be justified. As Frege often uses metaphors to elucidate his position* we shall first analyse three such metaphors and then shall also examine different aspects of his theory.

III. PRESENTATION OF THE OBJECT

(a) *Frege's Metaphors*

The interpretation of Frege's theory given above by Dummett seems to conflict with Frege's metaphors.

(i) Frege says, 'The following analogy will perhaps clarify these relationships. Somebody observes the moon through a telescope. I compare the moon itself to the reference; it is the object of the observation, mediated by the real image projected by the object glass in the interior of the telescope, and by the retinal image of the observer. The former I compare to the sense, the latter is like the idea of experience.'[12]

Now when one observes the moon through a telescope one does *not observe two things*, the moon and the real image of the moon on the lens, even though the observation of the moon is 'mediated' through the image. Thus the real image projected by the lens and the subjective retinal image have this in common that they are not observed even though whatever one observes is through one's retinal image. The fact that a defective retinal image, like a defective telescopic image, vitiates the observation of the object does not prove that the retinal image is observed. What is necessary for seeing an object is that the retinal image must *be* there, not that it itself be *observed* or *seen*. Thus if we take this metaphor seriously we have to give up the theory that both the sense and referent are the elements of the content cognised. We shall have to hold that it is the object alone which is cognised, though through the mode of its presentation.

*"Metaphorical expressions, if used cautiously, may after all help towards an elucidation. I compare that which needs completion to a wrapping, e.g. a coat, which cannot stand upright by itself..." (Negation, in *Translations*, 134).

[12]*Translation*, p. 60.

(ii) Frege also uses the metaphor of illumination and says that the sense of an expression 'illuminates the nominatum, if there is any, in a very one-sided fashion'.

Now let us examine this metaphor. The question here is when we see an object do we say that we see two things, the object and the light? The light by its *presence* illuminates the object; here again the light in which the object is perceived will determine the perceived colour of the object. When one perceives a red object it is not necessary for him to see that the object looks red only because the light is red.

(iii) 'Frege used the metaphor of a route from the name to the referent: names with different senses but the same referent correspond to different routes leading to the same destination.'[13] Here we have a different metaphor, the *names* having different senses but the same referent 'correspond to different routes leading to the same destination'. It is not clear to what the different senses themselves correspond. In the first sentence in the quotation Dummett seems to suggest that the names themselves are not the routes; 'a route from the name to the referent' suggests that a route connects the name with its referent. If we understand Dummet in this way then the different senses themselves will correspond to the different routes 'leading (from different names) to the same destination'. This metaphor too emphasizing the difference between the routes and the destination seems to suggest that it is the referent alone which is cognised and not the route.

These three metaphors can be summed up thus: the object is cognised *in* (suggested by the metaphor of illumination) and *through* (suggested by the metaphor of the telescope) and *by* (suggested by the metaphor of the route) the mode of presentation. Unless we hold that to cognise an object it is also necessary to cognise the mode under which the object is presented by a name, we cannot explain how a difference in the mode of presentation of the object can explain the difference in cognitive value.

(b) *Frege's Theory*

Whatever the metaphors might suggest Frege himself states

[13]Dummett, *Frege: Philosophy of Language*, p. 96.

categorically that it is the sense of the words which is directly cognised. For example, he says, 'The sense of a proper name is grasped by everyone who is sufficiently familiar with the language.[14]

(The referent of an expression if known at all, is known only indirectly by means of the sense). Alonzo Church, for example, says, 'To understand a language fully, we shall hold, requires knowing the senses of all names in the language, but not necessarily knowing which senses determine the same denotation, or even which senses determine denotations at all.'[15]

Thus, contrary to what Frege's metaphors suggest, Frege himself explicitly states, and all interpreters of Frege agree, that the sense of an expression is known when one understands its meaning.

IV. THE REFERENT

But now we raise another question, whether according to Frege, the referent of an expression too, is known when one understands its meaning. There does not seem to be any clear, unambiguous, interpretation of Frege's theory here.

Dummett, for example, explains Frege's theory in this way, 'What a customary translation of these words does correctly register is that Frege's distinction between sense and reference could not correctly be called a 'distinction between two ingredients in the intuitive notion of meaning'. Reference, as Frege understands it, is not an ingredient in meaning at all. Someone who does not know the reference of an expression does not show thereby that he does not understand or only partially understands, the expression.'[16]

Explaining further he says, 'Reference is not an ingredient in meaning. If reference were an ingredient in meaning, then indeed the reference of a word would exhaust—or determine—its sense, since nothing more would need to be known about its meaning in order to fix the truth-value of any sentence in which it occurred.' '. . . but I think that if we seek to understand the

[14]*Translation*, p. 57.

[15]*Introduction to Mathematical Logic*, Vol. I., p. 7.

[16]*Frege: Philosophy of Language*, p. 84.

claim that reference is not an ingredient in meaning, it will be seen to accord well with Frege's way of looking at the matter, although not with his way of expressing it.'[17]

Thus although Church and Dummett agree in holding that it is the sense which is known when we hear or otherwise come across a name, yet there seems to be a difference between Church and Dummett about the referent being known. Church says explicitly that we know the sense of an expression without necessarily knowing its referent. Even though the referent is a function of the sense, yet it is not a calculable function. There is no mechanical procedure by which the referent of an expression which is the functional value of its sense can be calculated. Yet Dummett is not very explicit about it. 'The sense of a word thus consists in some means by which a reference of an appropriate kind is determined for that word. To say that reference is not an ingredient in meaning is not to deny that reference is a consequence of meaning, or that the notion of reference has a vital role to play in the general theory of meaning: it is only to say that the understanding which *a speaker of a language* has of a word in that language . . . can never consist merely in his associating a certain thing with it as its referent; there must be some particular means by which this association is affected, the knowledge of which constitutes his grasp of its sense.'[18]

The point to be noted here is that Dummett is talking about a speaker of a language who knows the referent of a word, though not merely this, when he uses a word; it is not clear what a hearer would understand or know when he hears that word. Or, if he knows the language, he will surely know the sense of the word. But the question is, will he also *necessarily* know the referent? In the case of natural language there are words without any reference and Frege states clearly that in such cases it is necessary to understand the sense of these words, but not necessary to know their reference or that they have any reference.

The whole issue of whether one *has* to know the reference of a word in order to understand its meaning or sense *seems* to centre round the empty words. Yet what Frege himself says on this subject seems to imply that he makes a clear distinction between

[17] *Ibid.*, pp. 91-92.
[18] *Ibid.*, p. 93.

words which have a reference and words which do not have any referent. 'The sense of a proper name is grasped by everybody who is sufficiently familiar with the language or totality of designations to which it belongs; but this serves to illuminate only a single aspect of the reference, *supposing it to have one.*'[19]

Here Frege seems to say that when anyone grasps the sense of a *word which has a reference* also grasps the referent in one of its aspects. If the sense of the word *illuminates*, even though partially, its referent, when it has one, then it is difficult to understand how one can grasp the sense of *such a word* without also knowing its referent. For the word 'illuminates' seems only a metaphorical way of meaning 'reveals', 'manifests' or 'makes known'. Thus if the sense of a word 'illuminates' its referent when it has one, then it is difficult to see how one can know only the sense without also knowing the referent which 'is illuminated' by the sense. In those cases where words of a natural language do not have a reference their sense *does not determine* their reference. In such cases we cannot say that the reference is a function of the sense, because the function here is not defined at all. In artificial languages empty terms could be eliminated altogether by fixing the null object as the referent of expressions which do not have any other reference. But if senses determine reference in all cases (as in the case of artificially constructed languages) then the sense of any word when known will necessarily lead to the knowledge of its referent, even if this is knowledge that it has no referent. This, however, does not mean that to understand the senses of two expressions having the same reference is to know that they have the *same reference* because the senses of two different expression *illuminate* the same referent under two different aspects.

But now the question arises whether we know merely the sense of a word when it *does not have any reference.* Frege seems to say that there is a fundamental difference between knowing the sense of a word which has a reference and knowing the sense of a word which does not have any reference in ordinary language. Frege gives here examples of two expressions without any reference. "The words 'the celestial body most distant from the Earth' have a sense, but it is very doubtful if they also have a reference. The expression 'the least rapidly convergent series' has a sense

[19] *Translations*, pp. 57-58.

but demonstrably has no reference, since for every given convergent series, another convergent, but less rapidly convergent, series can be found. In grasping a sense, one is not certainly assured of a reference".[20]

Here Frege's examples are of two very different types.

1. The expression 'the celestial body most distant from the Earth' has a sense, but in grasping the sense of this expression we do not also know the referent, the reason being that 'it is very *doubtful* if it also has a reference'.

2. The expression 'the least rapidly convergent series' is different logically from the expression 'the celestial body most distant from the Earth', for it can be demonstrated that the first expression has no reference. This shows that the referent of the expression, 'the least rapidly convergent series' is *mathematically impossible*. But, then, can it have any sense? Can the expression 'a square circle', whose referent, too, is mathematically impossible, have any sense? Can an expression involving a *logical contradiction* have sense?

The first example, 'the celestial body most distant from the Earth' is definitely not a self-contradictory expression. Even then Frege says that by grasping its sense we are not assured of a reference. But it becomes wholly unintelligible, how the sense of an expression 'supposed to have' a reference 'illuminates the referent even though partially'. Alonzo Church has *generalised from the case of empty terms* that according to Frege knowledge of the sense of an expression does not lead to a knowledge of its referent. On this problem Dummett says different things at different places. For example, at one place he says, 'An expression can have sense but lack any reference. This is one of Frege's best known doctrines, and it is one of the hardest to hold in position in his philosophical system taken as a whole.'[21]

> "It is of the greatest importance for the understanding of Frege, to grasp that, while this was, for him, the correct account of how matters stand with regard to natural language, it was a totally unsatisfactory state of affairs revealing a defect of natural language which *must* be remedied in any properly

[20]*Ibid.*, p. 58.
[21]*Frege: Philosophy of Language*, p. 160.

> constructed language. ... For him, it was not a matter of convenience but of necessity. He thought that it is impossible to give any coherent account for the functioning of a language in which it is possible to construct well-formed sentences which lack a truth-value".[22]

Thus according to Dummett Frege's theory can no longer be applied to explain a feature of natural language—that many expressions have sense but no reference at all.

At another place Dummett seems to hold that to know the sense of a word, it is necessary to know its referent. He writes to argue against Geach:

> For some reason Geach has proposed that the sense of a proper name be considered as constituted wholly by the associated criterion of identity: thus all personal proper names of human beings would have the same sense, as would all names of cities, all names of rivers, all numerals and so forth. It seems difficult to see the point of this suggestion, which amounts to saying that Mill was only half wrong. Clearly, in order to be able to use the names 'Jupiter' and 'Mercury' I must know considerably more than that they stand for celestial objects: I must know *which such* celestial object they, by convention, are used to stand for. If this knowledge is not reckoned to the senses of the names, then it will not be enough to know the sense of any sentence containing them in order to be able to determine its truth-value: we must seek extraneous information, as when demonstrative is used in a sentence. Since this extraneous information is not provided by the mere circumstances of its utterance, but rests on agreed convention about the use of the names of exactly the same kind as those governing the use of other words—I am no more free to use 'Mars' to refer to 'Mercury' than I am to use 'elliptical' to mean 'circular'—it seems entirely arbitrary to regard it as extraneous, and deny it the title of forming part of the sense of the name.[23]

Here Dummett seems to hold the view that in order to know

[22] *Ibid.*, pp. 166-67.

[23] *Ibid.*, p. 180.

the sense of the name 'Jupiter', for example, 'I *must* know *which*' celestial object it is used to stand for. This amounts to saying that to understand the sense of a word *it is necessary* to know its referent. But we have already seen that Dummett also holds that 'Someone who does not know the reference of an expression does not show thereby that he does not understand, or only partially understands, the expression.'[24]

It is thus not clear what Dummett regards as the correct interpretation of Frege's position about the relation of *knowing the sense* and *knowing the referent* of an expression.

If we follow Church in holding that the reference of an expression is a function of its sense then we shall have to hold that this is not a calculable function. This does not, however, mean that it is impossible to know the reference of an expression by knowing its sense, for even though there be no mechanical method of determining the reference from the sense of an expression, still we may, given luck and ingenuity, succeed in knowing the reference of an expression by knowing its sense.

But the difficulty here is that there is no way of knowing *how* to pass from the sense to the reference of an expression. We know that there is no mechanical method of deciding whether a given formula of quantificational logic involving polyadic predicates is deducible from the axioms of a given system. Still we can succeed very often in knowing whether a particular formula is a theorem. But there is a fundamental difference between this case and the relation between sense and reference of an expression. In the case of deriving a certain theorem from the axioms we know definitely how to proceed, what rules of inference we have to follow, what premises in the form of axioms are available to us to generate theorems from axioms. But in the case of sense and reference, we are completely at a loss as to how to proceed from the sense to the referent. We know no way of determining, although non-mechanically, the referent of an expression on the basis of its sense. The difficulty here is that although we are told that the referent of an expression is a function of its sense, no further information about this function is given. We are simply told that f (sense) = referent. We are totally in the dark about the nature of this function f. By being told simply that the refe-

[24] *Ibid.*, p. 84.

rent is a function of the sense does not at all help in determining what procedure, if any, we may follow although non-mechanically, to know the value of the function for a particular value. Thus it is impossible for anyone to pass from the sense of an expression to its referent, even though the referent is a function of the sense. When Dummett says, 'there must be some route that he uses for reaching the referent from the expression, for instance, in the case of a proper name, some criterion he has for recognising an object as being or not being the bearer of the name.'[25] We do not get the reference from the sense even here. When we *already know* an object then we 'recognise' it as being the referent of the name by the criterion constituting the sense of the expression. But if this criterion for recognising the bearer enables one to perform this job unerringly in every case, then of course this identification of the referent ceases to be an undecidable function of the sense. If, on the other hand, the referent of an expression is an undecidable function of its sense, then the criterion of identity of the referent of the expression, which constitutes its sense cannot be a mechanical, automatic process. Given ingenuity and good luck we may succeed in applying the criterion of identity to a particular object, this application of the criterion to an object *given otherwise* is the relation of *reference* between the expression and the object. Thus there are two altogether different problems here:

(1) To know the referent of an expression by knowing its sense, and (2) to recognise an object already known as the referent of an expression by applying the criterion of identity of the object which constitutes the sense of that expression. When the referent is said to be not a mechanically calculable function of the sense, what seems to be meant is that given the sense there is no mechanical procedure by which to know the referent. But the question of applying a criterion of identity to an object which is already known is a decidable process. If there is a mistake in applying this criterion it can be automatically detected and corrected.

Dummett seems to hold that to seek extraneous information to determine the referent on the basis of the sense of an expression is impossible. All the information necessary to determine the referent of an expression must form 'part of the sense' of the

[25] *Ibid.*, p. 102.

expression. But if the sense of an expression is thus not merely a necessary but also a sufficient condition for determining its reference, then it becomes wholly unintelligible how a person can know the sense of an expression and yet fail to know its referent.

Dummett's interpretation of sense also makes it difficult to understand the Fregean doctrine that there can be two senses determining the same referent. He writes, 'We know a great deal about the object for which the name stands, and we may appeal to any part of this knowledge in determining whether or not an object presented to us is to be identified with the bearer of the name. . . . Here it is not merely that the sense is over determined, that it carries for more criteria for identification than are required for the sense of the name to determine an object as referent for it. Rather it is that we can draw no sharp line between the sense of the name and information that we possess about its bearer'.[26] Now if this be the case then it becomes difficult to see how the two expressions like 'the morning star' and 'the evening star' can have the same referent but different senses. Dummett states explicitly 'if the same object. . .can be identified by different criteria, corresponding to two expressions with different senses, the two expressions are likely to retain distinct senses only so long as we do not realise that their reference is the same. As soon as we do realise this, we are unlikely to continue to tie the two criteria to the two expressions: we shall almost certainly come to use either criteria indifferently for the application of either expression.'[27] This seems to run counter to Frege's assertion that the sense of a proper name 'serves to illuminate only a single aspect of the reference'.

Another difficulty is created by Frege's assertion that if the names are used in the ordinary way, we *talk about* their referents. If by hearing a sentence containing names, *the hearer* can understand fully its meaning by understanding merely the senses of the names, then it is not clear how anybody could understand or know what *a speaker* is *speaking about.* This merely shows that there is a gulf of difference between the speaker's and hearer's points of view and that there is also a fundamental difference between meaning and reference. A speaker of a sentence 'intends'

[26]*Ibid.*, p. 98.
[27]*Ibid.*, p. 101.

to talk about referents of words occurring in it, so also the speaker of a word. Reference of a word thus becomes a matter of intention of the speaker, while its sense is determined by the language and is independent of the intention of individual speaker.

Thus the two aspects of Frege's theory that in *understanding the meaning of a name one need not know its referent* and that *when names are used in their ordinary way what we talk about is their referent* make his theory inconsistent. If in order to use language successfully it is enough to know only the senses of the names then it is difficult to see how language can have any contact with reality. Frege, of course, asserts that the senses of expressions are as objective as their referents. Still it is not clear, at least in the case of empty terms, how their senses can be objective, that is, can belong to any object.

Frege's theory that the senses of expressions are not subjective ideas or images but are objective gives rise to various difficulties. In answering sceptics who doubt the existence of extra-mental objects, Frege says:

> How do you know that anything whatsoever has a reference ?' I reply that when we say 'the Moon', we do not *intend* to speak of our idea of the Moon, nor are we satisfied with the sense alone, but we presuppose a reference. To assume that in the sentence 'The Moon is smaller than the Earth' the idea of the Moon is in question, would be flatly to misunderstand *the sense.* If this is what the speaker wanted, he would use the phrase 'my idea of the Moon'. Now we can, of course, be mistaken in the presupposition, and such mistakes have indeed occurred. But the question whether the *presupposition* is perhaps always mistaken need not be answered here; in order to justify mention of the reference of a sign it is enough, at first, to point out *our intention* in speaking or thinking. (We must then add the reservation: provided such reference exists).[28]

What Frege says here seems to be that we merely *presuppose* that the referent of a name exists when we use that name, that we *intend to* speak about a real object. That is why he says, 'if words are used in their ordinary way, what one *intends to* speak

[28]'On Sense and Reference', *Translations*, pp. 61-62.

of is their reference'. He never says that we succeed always, or even ever, in talking about real objects. But now what happens in the case of expressions like 'the least rapidly convergent series'? Here it is mathematically *demonstrated* that the expression *can have* no reference. So we know in such cases that the expressions cannot have any reference. What then do we *intend to talk about* when we use such expressions? In the case of such expressions we *cannot presuppose* that they have a reference because we *know already* that they cannot have any reference.

About expressions like 'the celestial body most distant from the Earth' the situation is anomalous. Frege says, 'It is very doubtful if they also have a reference'. Now when we use an expression like this do we presuppose that it has a reference, do we intend to speak about a real object? What stands in the way of presupposing that its referent exists? Thus Frege seems to hold that in two types of cases we do not, or perhaps cannot, presuppose that a reference exists:

1. Where we know that the referent is impossible.
2. Where we have grave doubts whether the referent exists.

Thus it seems that there are two types of cases where we can presuppose the existence of the reference of an expression:

1. Where we know that such a referent exists.
2. Where we do not know that a reference is impossible and also do not have any doubt about its existence; that is, where we neither know nor doubt the non-existence of the referent.

This shows the inadequacy of Frege's reply to the sceptics, for even on Frege's theory the sceptics who doubt the existence of object will be justified in using language. The sceptics will completely understand one another by understanding the sense of the sentences they speak and hear, even though, they never intend to speak about any real object. Thus according to Frege, intelligent use of language does not presuppose the reality of a world. (But then what can be the meaning of the term 'objective' when applied to the sense of an expression? It cannot mean 'belonging to an object' nor even 'intended to belong to an object'. When we use the expressions like 'the least rapidly

convergent series' Frege himself asserts that we cannot even intend to speak about a real object. Yet expressions like this do have a sense and this sense even in the case of such expressions cannot be subjective. In what sense then, can it be objective? It cannot be objective even in the sense that all persons who use this expression necessarily understand the same sense. For, according to Frege himself, the same proper name can be understood to have different senses by different individuals. Thus senses are objective, yet they neither belong nor are intended to belong to a real object, nor are they intersubjective. In what sense are they, therefore, to be regarded as objective? The only sense in which senses of such words are objective must be that they are communicable. This is based upon Frege's presupposition that whatever is subjective is incommunicable in principle and whatever is communicable must be objective. Because senses of words are communicable, they are objective in Frege's sense.

Frege's theory presupposes that the reference of expressions be known independently of these expressions. Dummett, for example, writes,

> Frege's notion of reference is best approached via the semantics which he introduced for formulas of the language of predicate logic. An interpretation of such a formula is obtained by assigning entities of suitable kinds of the primitive non-logical constants occurring in the formulas . . . The interpretation will assign to each individual constant an object . . . [29]

Now if the object which is assigned to a constant, i.e. a name of the language, is its reference, then to relate the name to its referent, both the name and the referent *must be given* somehow prior to the semantic relation. This means that the object which is to be associated with a name by means of which it can get known *as its reference*, must be *already known*. Dummett himself writes, 'Frege's manner of introducing the notion of reference relies heavily on various intuitive notions which we take for granted: it presumes a prior familiarity with the conception of the relation of name to bearer, of that about which we are speaking when we use a proper name . . . '[30] And in thus presupposing the

[29] *Frege: Philosophy of Language*, p. 89.
[30] *Ibid.*, p. 405.

intuitive concept of the name bearer relation is presupposed that the bearer of the name is known independently of the name. Dummett himself says,

> Our original, excessively weak, characterisation of the force of Frege's appeal to the name/bearer relation as prototype required merely that the semantic role of each type of expression should be construed as consisting in a relation of reference between it and some non-linguistic entity. In the light of our discussion, it now seems reasonable to require, further, that the existence of such an entity should be capable of being grasped by other means than simply by considering it as the referent of an expression of that type.[31]

Thus it is admitted by Dummett himself that before a name is semantically related to an object, the object has to be *already* known in some way other than as the referent of the name.

We do not however mean that the object must exist for a name to be given to it. For example, the name 'ether' was given to a substance postulated to explain what light waves could be waves of, so also in the story which begins with 'once upon a time there lived a king named Daśaratha . . . ' the name is given to something which is described only in general terms. In such cases the possibility of eliminating the names by some definite description, à la Russell,—reveals a peculiarity of Frege's concept of names. According to Frege, proper names and definite descriptions both belong to the category of names. What is necessary is that the object must be *presented* before a name can be *given to it*. Name-giving is a process which requires that the object be presented somehow independently of the name. Using the name afterwards is an altogether different process.

Dummett's position is ambiguous on the problem of the relation of an expression to its referent. At many places Dummett emphasizes Frege's realism, yet he maintains that according to Frege we know the world only via the language. Arguing against Mill he writes, 'Mill wrote as though that the world already came to us sliced up into objects, and all we have to learn is which label to tie on to which object. But it is not so : the proper names which we use, and the corresponding sortal terms, determine

[31] *Ibid.*, p. 407.

principles whereby the slicing up is to be affected, principles which are acquired with the acquisition of the use of these words.'[32]

Now, if it is Frege's theory that we learn to slice the world up in a certain way 'only because we employ a language', it is difficult to see what sort of realism Frege advocates. To be a realist it is not enough to hold that there is a world existing independently of our knowledge, if this world is an unanalysed, amorphous sort of thing which can be 'sliced up' conceptually to yield a picture of well defined objects only by means of language. The sort of realism, which according to Dummett, Frege advocates, is perilously near nominalism, which many have unearthed hidden in Frege's theory. But Dummett seems to reject this interpretation of Frege and presents him as a realist. Yet on crucial points, he interprets Frege, apparently to defend him against charges of Platonism, almost as a nominalist. Thiel, however, shows that Frege moved from a Kantian position to the so-called Platonism.[33] Thiel argues that even in *Begriffschrift* Frege holds that logic deals with thought as a mental activity. It seems to us that there is no doubt that Frege is here moving along Kantian path.' 'Clearly put: Frege's position in this period of his thought can be most naturally termed a variant of Kantianism'.[34] Thiel argues that it is a mistake to think that Frege adheres to one type of ontology from beginning to end, although he admits that in his later writings he moved towards some sort of Platonism. But in mixing up ontology with semantics Frege confused between two altogether different problems. "In this way there is an interference between the group, 'subject-sense-reference' and the other, 'expression-sense-reference' and we will try to show that there are two complete dimensions here which Frege did not distinguish clearly enough."[35] Thus we find that not only Dummett fails to give a satisfactory account of Frege's theory, but Frege himself wavers on many crucial points.

We now present in bare outline a realistic theory of language developed by Gadādhara Bhattacharyya, the last great logician of the Navya-Nyāya School of Indian Philosophy.

[32] *Ibid.*, p. 179.
[33] *Sense and Reference in Frege's Logic.*, p. 144
[34] *Ibid.*, p. 144.
[35] *Ibid.*, p. 146.

V. GADĀDHARA'S THEORY OF LANGUAGE

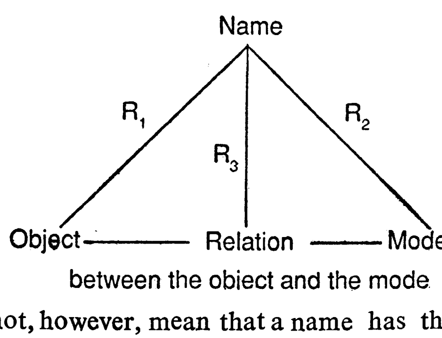
According to Gadādhara, a Nyāya philosopher, knowledge or cognition is of two types—(i) Direct awareness of objects, and (ii) cognition of objects through a mode. Direct cognition of objects cannot be expressed in language, cannot even be known in introspection. According to many Nyāya philosophers, there cannot be any direct *evidence* for the existence of this type of knowledge. Yet this type of direct awareness of objects has to be postulated in order to explain the possibility of the second type of knowledge, viz., the cognition of objects through a mode. If this type of knowledge through a mode is to be possible, then at least at some stage, some object which will function as modes in later knowledge *must be known* directly without any mode, in order to avoid infinite regress. For the rule here is that, the mode must be known prior to knowing anything through that mode. In every cognition through a mode there are three elements which constitute the objective complex. The object which is known is the qualificandum of the knowledge, the mode through which it is known is the qualifier of the knowledge, and the relation between the object and the mode is the qualification. The full-blooded realism of Nyāya is brought to bear on this point too. Neither the object, nor the mode, nor the relation is anything subjective or non-existent, or subsistent. They all have the same ontological status as reals.

When objects are known through their mode, this knowledge can be expressed in language. Even when a single word is uttered by a speaker it produces in the hearer, who understands it, a knowledge of an object through a particular mode. Thus what is meant by a word is a relational complex containing three factors, the object denoted by the word, the mode through which the object is cognised and the proper relation between the object and the mode.

It is interesting to note that even in traditional Western logic these three factors are distinguished in the meaning of 'concrete general names'. For example, Mill writes, 'The word man, for example, denotes Peter, Jane, John and an indefinite number of other individuals, of whom, taken as a class it is the name. But it

is applied to them, because they possess, and to signify that they possess, certain attributes'.[36]

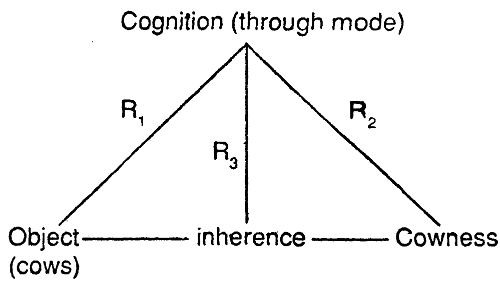
Now if words like 'man' are applied to individual men 'because they possess and to signify that they possess, certain attributes', then it means a relational complex, things-possessing-humanity. Dummett interprets Frege's notion of sense of an expression as the reason for applying it to its referent. Mill seems to say the same thing about the connotation of the term 'man'. The term 'man' is applied to individuals *because* they possess and to signify that they possess certain attributes. So possession of those attributes is the ground, if not also the cause, of the application of the word to the things denoted by it. However, the difference between Frege and Mill lies in this that according to Frege, all expressions are to be understood in the way of Mill's 'concrete general terms'. In Navya-Nyāya generally, and also according to Gadādhara, the mode under which an object is cognised is the ground for applying the word to it. Thus a word is associated (i) with an object which is the qualificandum of the cognition (produced by the understanding of the meaning of the word), (ii) with the mode under which the object is known and also (iii) with the relation between the object and the mode. But the word is related with these three elements of the relational complex by three different relations, thus:



This does not, however, mean that a name has three different meanings—there is only one meaning, there is one connection for one word, but this one meaning relates the name to the three elements of a relational complex in three different ways. These three different relations of a name to the three elements of the

[36]J.S. Mill, *A System of Logic*, Book I, chap. II, 5.

relational complex which is its meaning, correspond to the three different relations in which the *knowledge*, which one has when one understands the meaning of the word, stands to the objective complex. Thus when we hear the word 'cow' and understand its meaning, we have the cognition of objects-as-possessing-cowness, i.e. objects-as-instances-of-the-universal-cow. Here one cognition is related to the relational complex object (cow)-as-possessing-cowness not by one relation. This one cognition is related to the *three elements* of the relational complex by three different relations, thus :



To say that the objects (cows) are the qualificandum of this cognition is to say that the cognition is related to them in one way. To say that cowness is the qualifier of the cognition is to say that the cognition is related to cowness in a second way, and to say that the relation (here inherence) is the qualification of the cognition is to say that the cognition is related to the relation in a third way. Corresponding to these three relations in which a cognition stands to the three elements of the relational complex, there are three relations in which a word stands to the three elemenst of the relational complex which it means. Now which particular object a word means under which mode, and in which relation the mode stands to the object are all fixed by convention. Gadādhara and Navya-Nyāya philosophers generally do not accept the view that the referent of a proper name like 'Aristotle' can refer to a particular individual but under different modes for different users of the name. Even the modes of cognition produced by proper names are fixed.

The problem of vacuous or empty terms is eliminated by postulating God as the authority for the convention. Sanskrit is regarded as the 'language of the Gods' and all *basic* (simple)

words here have denotation because it is God who has associated the basic words with their referents. And as God is both omniscient and veracious He cannot either make a mistake or deceive. Only *compound words* which *we* construct can be empty or lack a referent. Yet these empty words, unless they are self-contradictory are meaningful expressions. For example, the complex word 'hare's horn' is analysed as meaning the horn of a hare where both the basic words 'hare' and 'horn' have reference, though the compound fails to have one.

We note here a peculiarity of Sanskrit as the language of logic. Sanskrit is not a living language like English or Bengali and opinions differ on the question, whether it was ever a living language. Still Sanskrit is used as the language of all serious discourse, even today, by traditional scholars. Instead of calling it a 'dead language' it will be better to call it 'a frozen language'. A frozen language has many similarities with an artificial language.

(a) All the basic (simple) words are listed completely. No new basic words can be added to be vocabulary.

(b) The rules of forming complex expressions—compounds, sentences, clauses—are stated rigorously and completely.

But the rules of inferences or the so-called transformation rules are not given, neither are symbols used. Yet because of the exhaustive list of basic words and the rules of forming compound expressions, a certain amount of rigour is attained in the theories of inference and meaning. For example, meanings of the basic words (except ambiguous words which are not regarded as *one* word) are also fixed by convention. There are no basic empty terms.

Now we discuss the problem of abstract nouns of the first and higher orders. A concrete general term like 'cow' means the relational complex cow-inherence-cowness, where cowness is the mode under which the objects (cows) are apprehended by anybody who understands the meaning of the word 'cow'. The rule that a word can denote an object only under a mode, has no exception. An abstract term like 'cowness' must therefore, mean a relational complex cowness-*svarūpa sambandha* (self-relating relation)-cownessness and so on. The rule here is that when a universal becomes a mode under which a particular is denoted by a

word, that universal not being *denoted* is called 'unmentioned' and is known *directly without any mode.* All *unmentioned universals,* i.e. universals not *denoted* by abstract terms are known directly as *inhering* in particulars. But if a universal is *denoted* by an abstract term, then it has got to be cognised under its own mode, which, too, in its turn can be denoted by an abstract term of a second order. Now this abstract term of the second order very often denotes something which also can be denoted by a concrete term. There is sometimes a controversy among Navya-Nyāya logicians as to *which* abstract term denoted abstract entities and which abstract terms, even though abstract grammatically, yet denote concrete objects. For example, cowness, i.e. the property under which the universal cowness is cognised, when it is denoted by the abstract term 'cowness', is not another abstract entity. Cownessness is the reason for applying the word 'cowness' to the universal, and this reason is that cowness inheres in cows i.e. objects having a certain shape and form. This shape and form which is a visible quality of individual cows is what is denoted by the doubly abstract term 'cownessness'.

Dummett, in explaining Frege's doctrine that in opaque contexts, what is the sense of a word in ordinary context, becomes its reference, concludes that there is no 'indirect sense' corresponding to the indirect reference. In such usage, according to Dummett, the reference and the sense of an expression become identical. But this will go against Dummett's explanation of the concept of sense as the *reason for application* of a word to its referent. If the referent and the sense become identical in any context, then we shall have to say that the reason for applying the word to its referent does not exist, or that the fact that the expression refers to its referent *is* the reason for its having the referent. This will mean that in such usage when ordinary sense of an expression becomes its reference, it also becomes its own reason for application to the referent. Now according to Gadādhara and Navya-Nyāya logicians generally, the reason for applying a word to its referent can never be identical with its referent. This does not lead to an infinite regress in ontology although there is an indefinite progression of grammatical expressions of abstract terms of higher and still higher order. The regress in ontology is stopped by the Navya-Nyāya theory that a

term which is abstract grammatically (because it contains one or more occurrence of the grammatical suffix '-ness'), *need not refer to* an abstract entity. As in ordinary Sanskrit abstract terms of higher orders are not used at all, the meanings of these terms, which are, therefore, to be regarded as technical terms, are determined by the Navya-Nyāya logicians themselves. Even in the cases of abstract terms containing only one occurrence of the suffix '-ness', it is not always the case that an abstract entity is *denoted* by them. The grammatical form of a term, therefore, is not regarded as a sure guide to its meaning, specially denotation. Now we explain Gadādhara's theory of meaning of a sentence. First we consider the problem of the unit of meaning, i.e. whether a sentence or a word is primarily meaningful.

According to Gadādhara, anyone who understands the meaning of a sentence, knows the meaning of each of the words occurring in the sentence, i.e. knowledge of the meaning of the words occurring in a sentence is a necessary, although not a sufficient, condition of knowing the meaning of the sentence as a whole. Now this assumption implies not merely that the knowledge of the meanings of the words is different from the knowledge of the meaning of the different sentences in which they occur, but also that the knowledge of the meaning of every word is a pre-condition of the knowledge of the meaning of sentences. This is possible only if the meaning of every word is known before the meaning of a sentence is known. This assumption, however, may seem to lead to a difficulty in the case of the so-called syncategorematic words. Words are usually classified into categorematic and syncategorematic words, according as the words can or cannot mean anything by themselves without the help of other words. So it may be supposed that the syncategorematic words do not have meaning at all independently of the context in which they have to occur in order to be a part of significant discourse. But this seems to be a mistake, for to say that a syncategorematic word is meaningful only in a context, is not to say that it is the whole context which alone has a meaning, but not the individual words which constitute the context. Every word, categorematic or syncategorematic (or even acategorematic), must have a meaning, for a word is defined to be a letter or a group of letters which has a meaning. Thus adverbs, prepositions, conjunctions, interjections, all have meaning

just as nouns, adjectives and verbs. We have, therefore, to admit that what is meant by a word cannot in every case be an entity or a substance. The grammatical distinction between the different parts of speech presupposes different categories of reality. To be real is not necessarily to be capable of being *named*, although we may hold that there is nothing real about which we cannot *speak*. Gadādhara does not accept the theory that different parts of speech mean whatever they mean *in different ways*; according to him, all words mean *in the same way*, but only *different categories* of reals. This might also explain why we cannot *know* the meaning of a syncategorematic word by itself or why a syncategorematic word has to be supplemented by the necessary number of categorematic words if we are to know its meaning. For if a syncategorematic word by itself means a feature of reality which is not an entity, its knowledge also will involve knowledge of some entity or the other. We presuppose here the principle that if something is *relative* then it cannot also be *known by itself*. Thus a relation can be known only if its terms are known, the meaning of a word for a relation can be known only when the word is supplemented by words meaning the terms of the relation. Take, for example, the preposition 'up'. Its meaning is given by a single word in dictionaries, but neither it nor its synonyms can produce a knowledge of their meaning in their hearer. What we assume is that in order to know the meaning of a sentence, one must know already the meaning of every word occurring in that sentence; and this assumption is consistent with the theory that we can know the meaning of syncategorematic words only when they are used in a context and that their meaning can be learnt only from their use in some context. What we deny when we make the assumption is that no one should learn the meaning of any syncategorematic word which may be occurring in a sentence *after*, or at the time of, his knowing the meaning of the sentence. He may indeed hear a sentence in which unknown words occur, then he may learn (guess or infer) the meaning of the unknown words from their occurrence in that very sentence and *then* know its meaning.

This theory, therefore, denies that it is a sentence which is *primarily* meaningful, and that words come to acquire whatever meaning they have, only from their use in sentences. It is some-

times said that the theory of the primary meaning of sentences is justified by the epistemological theory that judgement is the unit of knowing. It is argued that just as a judgement is not built up from concepts so also a sentence is not built up from words. But this theory fails to justify the way in which we learn the meaning of sentences. When we learn a few sentences of a foreign language without knowing the meaning of the words, we proceed in just the same way as we learn the meaning of words from a dictionary. When we know the meaning of a sentence in this way our knowledge is necessarily confined to the meanings of only those sentences which we have memorised. If, on the other hand, we learn meanings of words and the modes of their combination first, then we can know the meanings of an *unlimited number* of sentences which we never heard before and hence, of which we could not have memorised the meaning. The fact that even though we know the meanings of a limited number of simple words—indeed the number of simple (non-compound) words in a given language seems to be limited—we can yet construct and understand an unlimited number of sentences shows, in our opinion conclusively, that *at least at the present stage of development of languages*, the meanings of sentences is derived from the meaning or words occurring in them (and their interrelations); and to know the meanings of sentences we have to know the meanings of words occurring in them.

We, therefore, make a radical distinction between knowledge of word-meaning and knowledge of the meaning of sentences.

Now the question arises: if one knows a fact when one knows the meaning of a word like 'man', then how this knowledge is to be distinguished from the knowledge of a sentence? Usually two different types of answers are given to this question.

(A) A name denotes an object, an entity, while a sentence means a fact, a proposition; so when one hears a sentence one knows a fact. But this answer loses its force when one hears a general concrete noun, for then one knows not an object, or a class of objects, but the fact that an object or a class of objects possesses an attribute or a class of attributes. As a matter of fact in the meaning of a term like 'man' we can distinguish three factors: (i) the entities which are denoted by it, (ii) the attributes of these entities, which constitute its connotation, and (iii) the relation bet-

ween the attributes and the entities. This is why when one hears such a term, one knows a fact, which is nothing but a relational structure involving at least one relation and its terms. This relation between the denotation and the connotation of such a term is also a part of its meaning; this is why an *abstract* term is defined as a term which means attributes apart from their relation to the things possessing them and is contrasted with a concrete term which, therefore, means attributes as related to (possessed by) things. 'Whiteness, therefore, is the name of the colour exclusively: white is a name of all things *whatever having* the colour'[37] and *a thing having a colour* is a fact or a proposition. As a matter of fact, we hardly know any *object*, the so-called objects are all facts. For an object like a table is a complex of parts interrelated to each other and hence is a fact. This consideration led Wittgenstein to assert in the *Tractatus* that *the object* is the absolutely simple, and it is the object alone which can be *named.* But it is quite understandable why Wittgenstein never gave any example of object in his sense, for nothing in this world which we know is simple in that sense. Thus according to this theory, ordinary words like 'man' etc. mean facts not because they mean the relational wholes like 'things possessing humanity', but because even in denoting Peter, it would mean a fact, for Peter or any other man is a fact, and not a simple object.

(B) The second way of distinguishing between a name and a sentence is to hold that in a sentence there is assertion (of a proposition) whereas in a name or a word there is no such assertion. This is different from (A) inasmuch as according to it, when one understands a sentence he knows not merely a fact, but that the *fact is asserted to exist.* It is the function of the finite verb which every sentence must contain to make an assertion. Thus words and sentences are different from each other, for words do not, while sentences do, assert and this difference is reflected in *the knowledge of* their meaning.

Now this theory has the merit of being able to explain what difference there is in the meanings of the phrase 'the brown table' and the sentence 'the table is brown', i.e. between the attributive and the predicative uses of adjectives. The phrase 'the brown table' means a relational complex just as much as 'the table is

[37]Mill, *A System of Logic,* Book I, chap. II, 4.

brown'; but while in the former there is no assertion, in the latter there is assertion.

In spite of this advantage of this theory, it is not satisfactory, for there can be nothing *in* the sentence which can express assertion. If someone simply utters or quotes a sentence, he does not assert anything, the finite verb in the sentence notwithstanding. This is why Frege had to introduce the sign of assertion as a sign of the meta-language. To make an assertion it is not enough to use a sentence, it is necessary to say about the sentence that it makes an assertion.

Now if a sentence thus fails to assert, how are we to distinguish between 'the brown table' and 'the table is brown'? There does not seem to be any way out of the difficulty—both the phrase and the sentence express the same fact, and this fact is what is known when the meaning of either of them is known. Let us therefore see if a *single word* like 'man' can be distinguished from a sentence so far as the knowledge of their meaning is concerned. We accept the view that when one hears the word 'man' he knows a relational whole as its meaning, e.g. 'anything possessing humanity', and to know the meaning of a sentence also is to know a relational whole.

Still we can make a distinction between the two types of knowledge in the following way. When a relation is known as a part of the meaning of a word like 'man' it is known in one way. When however one knows a phrase like 'the brown table' or the sentence 'the table is brown' (we do not distinguish between these two) the knowledge one gets is of a different nature although it is still of a relational whole. This is because in knowing the meaning of a sentence the relation between the meanings of words are *understood* but not known again as a meaning or a part of a meaning of a word. Whenever a sentence is uttered or written, the words are arranged in a certain order, and this order of the words occurring in a sentence is also known. Thus when one knows a sentence one not merely knows the words occurring in it but also their order. Now this knowledge of the order of the words is what produces the knowledge of the relations among the meanings of the words. What is thus indicated by the arrangement of words in a sentence may become expressed by words in another higher

order sentence, but then the knowledge of the meaning of this higher order sentence is different from the knowledge of the lower order sentence, because in the knowledge of the meaning of the higher order sentence we have all the structural detail of the meaning of the lower order sentence, and also additional relational elements which are indicated by the order of its words. Thus the phrase 'the brown table', when known, produces the knowledge of the relational whole consisting of the two terms, (i) that which is brown and (ii) the table; and their relation which is identity. But if we have the sentence, 'that which is brown is identical with the table', then we have the knowledge of a relational whole consisting of three terms, (i) that which is brown, (ii) the table, and (iii) identity and their relation. Thus we see that although the knowledge of the meaning of a single word like 'man' is of a relational complex and the knowledge of the meaning of a phrase like 'the brown table' or the sentence 'the table is brown' is also a relational complex, still there is significant difference between the two types of knowledge. In the case of the word, the relation that is known is *meant* by a word, whereas the relation that is known when the meaning of a phrase or sentence is known is not meant by a word but has to be understood from the *order of the words*. Thus although there is a difference between the knowledge of the meaning of a word and the knowledge of the meaning of a phrase or a sentence, there is no such difference between the knowledge of the meaning of a phrase and the knowledge of the meaning of a sentence. This however is not to deny that there is a grammatical distinction between a phrase and a sentence. But this grammatical distinction is not reflected in the knowledge of the meaning of a phrase or a sentence, for the finite verb which distinguishes a sentence grammatically from a phrase fails to produce a knowledge different in type from the knowledge produced by the phrase.

We now summarise the points that we have tried to make.

(i) The knowledge of the meaning of a sentence presupposes the knowledge of the meaning of every word occurring in the sentence. (ii) The knowledge of the meaning of a phrase is not different in kind from the knowledge of the meaning of a sentence. (iii) The knowledge of the meaning of words like 'man' is the knowledge

of a relational complex, i.e. a fact. (iv) Yet this type of knowledge is different from the type of knowledge of the meaning of a sentence, for relations among the meanings of words in a sentence are indicated by the order of words and are to be understood, whereas the relation known as a part of the meaning of a word is meant by the word.

CHAPTER 8

CLASSIFICATION OF COGNITIONS

I. INDETERMINATE COGNITIONS

Navya-Nyāya classifies cognition on the basis of three principles. There is, for example, the classification of cognitions into memory cognitions and non-memory cognitions. This classification is based upon the fact that some cognitions give us new information and some cognitions are mere repititions of old cognitions. The difference between a memory cognition and a non-memory informative cognition is sought to be explained purely in terms of causal factors of the cognitions concerned. A memory cognition is a cognition which is produced solely by memory traces left by earlier cognitions. We shall not be concerned with this classification in any special way in this chapter.

The second classification of cognitions is, of course, the classification of cognitions into true and false cognitions. The definition of a true cognition is an important topic in Navya-Nyāya. So we shall take it up after we have explained the third form of classification.

The third classification of cognitions is classification of cognitions as cognitions, i.e. by the nature of the cognitions of the objects cognised. We shall explain in detail the different kinds of cognitions admitted in Navya-Nyāya on this basis only.

The first type of cognition which is regarded as basic to all other types of cognitions is what is known as non-relational cognition. In this type of cognition we do not know a complex object of the form *a-R-b* but only isolated items. Now there are three different theories of what is exactly known in this type of non-relational cognition.

(i) The first theory is based upon a causal theory of relational cognition. It is argued that in order to have a cognition of the form *a-R-b* it is necessary to cognise the terms *a* and *b* before we can cognise their relation R. Now the first term

of the relation may be presented in perception. Hence a cognition of the second term is a pre-requisite for every relational cognition. Yet if we hold that the second term also is to be cognised in a relational cognition then there will be a second term of this new cognition which will be presupposed in the cognition of this second term and so on ad infinitum. Hence to stop this infinite regress it is necessary to postulate a kind of cognition which is not relational but which is a direct presentation of what will serve as the second term of a relational cognition later. As the second term of the relational cognition is called a qualifier of the cognition, in this non-relational basic type of cognition we have a direct apprehension of that isolated object which may be a qualifier in a later cognition.

The reason for accepting the causal theory of a relational cognition, i.e. as produced by a cognition of the qualifier, is this: when we see what is objectively a table as a table or as the thing presented here and now, i.e. as *a this*, or as a piece of furniture, and so on, the perceptions differ as to the relational object cognised, i.e. as to the mode of presentation of one and the same object only because we have a current cognition, i.e. a current conscious state, of a certain qualifier. When we have a current cognition of the universal jarness we shall know the presented object as a jar, when we have the current cognition of an earthen thing we shall know the same presented object as an earthen object and so on. The point here is that when we perceive an object we do not know all its properties or qualities in one act of cognition. In some cognitions we know one quality, in another cognition we know another quality or property of one and the same object and so on. This property of perceptual acts is called in Western philosophy, the *selectivity of perception*; but according to Navya-Nyāya perception is selective only in the sense that we shall perceive a thing under a mode when that mode is actually in consciousness, i.e. is an object of a present act of cognition and is not merely an object of a disposition. If there is a disposition to cognise a certain thing as a jar for example, still we shall not cognise actually, or perceive it actually, as

a *jar* if that disposition is not brought into play in the form of an actual act. Hence to avoid the infinite regress of cognising an object only under a mode of presentation, the Navya-Nyāya philosophers accept the theory of a state of cognition in which we have direct presentation of an isolated object which will become the qualifier in a later state of relational cognition.

(ii) A second theory of non-relational cognition which some Navya-Nyāya philosophers hold, is that it is an indeterminate perception of an undifferentiated whole. The non-relational cognition is not the cognition of the mode as distinct from the object which is cognised under the mode, i.e. a cognition of the qualifier as distinct from the qualificandum, but of a total whole in which the elements have not yet been separated, or cognised separately, as two items of a relation. The whole is an undifferentiated non-relational object which is the object of a non-relational cognition. Later on, this undifferentiated object becomes differentiated into two elements as related by a certain relation and becomes the object of a relational cognition.

(iii) Viśvanātha, however, holds that in a non-relational cognition we have a cognition of both the qualificandum and the qualifier, i.e. of both the object and the mode under which it will be cognised later in a relational cognition. Yet the two items which are cognised in a non-relational cognition are not related by any relation. According to Viśvanātha, in a non-relational cognition we cognise not merely jarness, not merely an undifferentiated whole of jar-jarness, but the two elements jar and jarness, not of course, cognising that they are related by the relation of inherence or by any relation whatsoever. That is, according to Viśvanātha, in a non-relational cognition we have a cognition of two items, but *not as related by any relation at all* but only as unrelated. In a relational cognition which follows upon this non-relational cognition, we cognise these two elements as related by a certain relation. The difference between a relational cognition and a non-relational cognition according to Viśvanātha is, therefore, that in a relational cognition we cognise a relation between two terms whereas in a non-

relational cognition we cognise the two terms but not their relation.

The problem which crops up here is whether this non-relational cognition is an actual state of cognition or is merely a logically necessary state which has to be postulated, but need not be an actual cognitive state. Here also there are three different theories among the Navya-Nyāya philosophers. According to one theory, this state of non-relational cognition is purely a logically necessary stage, which is not an actual psychological state of cognition. This has to be postulated only to explain how there can be a relational cognition at all, because every relational cognition presupposes a cognition of the mode, i.e. the qualifier of the relational cognition. According to the second theory this non-relational state of cognition is an actual state of consciousness which we have for example, on the first moment of awakening from a deep sleep. This is the theory which has been advanced by some authors notably Mahadeva Puntamkar, the author of *Nyāyakaustubha.*

The third theory postulates the actual occurrence of this type of non-relational cognition prior to every act of relational cognition. According to this theory, because a relational cognition is impossible without a direct non-relational cognition of the mode or the qualifier of the relational cognition, every relational cognition, specially every perception of an object, has to be preceded by an actual occurrence to this non-relational type of perception in which only the mode is directly presented and which does not need to be cognised through any mode at all.

We will compare this theory of direct presentation of the object with Russell's theory of knowledge by acquaintance.

According to Russell, knowledge by acquaintance is a direct knowledge not through any property of the object and therefore, gives us infallible guarantee of the reality of the object known. Now according to Navya-Nyāya, this is not the type of argument which leads one to postulate the kind of direct presentation of an object in a non-relational cognition. A non-relational cognition is postulated only because otherwise we shall not be able to explain how we can have at all a relational cognition, i.e. a cognition of an object under a certain mode. The mode has got to be

cognised first and must be presented in consciousness actually when an object is cognised under this mode. The cognition of the mode may be a perceptual cognition, in many cases it is usual to have a memory cognition of the mode and only through this mode we cognise an object in a relational cognition.

According to Navya-Nyāya this non-relational cognition cannot be remembered at all because according to Navya-Nyāya a memory cognition is the reproduction of a cognition of the same form, and a form of a cognition is present only in a relational cognition. The form of cognition means here the way in which two smaller items of the object cognised as related by a certain relation. Now memory reproduces a cognition which produces it and has the same form as the cognition causing it, but as non-relational cognition does not show any structure, it does not have any form at all, therefore, a non-relational cognition cannot be remembered. The second point of difference between Russell and Navya-Nyāya is that this non-relational cognition is not an object of introspection either. We can have an introspection only of a relational cognition as characterising a knower but if the cognition is not of a relational type at all we cannot have any introspection. For example, when we perceive something as a jar, i.e. have a relational cognition of jar-inherence-jarness then we can have an introspective awareness which has the knower as the qualificandum and the cognition along with its object—the relational whole—as the qualifier and the relation between the cogniser and the cognition as the characterising or qualifying relation. If we do not have any relational cognition then we cannot have a memory either. This point will be explained in detail later on.

The third point of difference between Navya-Nyāya and Russell seems to be this that according to Russell the object of knowledge by acquintance can be expressed in language by what he calls a logically proper name but according to Navya-Nyāya this non-relational cognition cannot be expressed in language at all. For any word which would express it would involve a relational cognition for according to Navya-Nyāya there are no logically proper names at all.

II. DETERMINATE COGNITIONS

We now come to the Navya-Nyāya theory of relational cognition in which we know an object of the form *a-R-b*. The peculiarity of this type of cognition is that it is a complex object, namely, a relation and its two terms. The first term of the relation is the qualificandum of the relation, the second term of the relation is the qualifier of the cognition and the relation is the qualification. Now this relational cognition is of a special nature and is to be carefully distinguished from other types of cognitions which are also more complex than the similar type of cognition discussed above, namely, non-relational or indeterminate perception. It is necessary to introduce certain technical concepts in order to make the distinction between relational cognition and other types of complex cognition clear.

When the object of a relational cognition is said to be of the form *a-R-b*, we have *a*, *b* and *R* as the qualificandum, the qualifier and the qualification of the cognition respectively. Now a qualificandum is a qualificandum in the context of the particular cognition, what objectively is the qualificandum, namely, *a* can become a qualifier in a different cognition and so on. So we shall have to explain the nature of a relation qualificandum *of*, qualifier *of* a cognition. The preposition *of* here stands for a relation of determination, i.e. object and its cognition are correlatives so that the cognition determines its object. Now within the object again there are two elements related by a relation and these elements again are correlatives with respect to their relations. Thus *a* is the qualificandum of the cognition, i.e. in relation to the cognition and also we say *a* is the qualificandum of the knowledge, i.e. in relation to the cognition and also we say *a* is the qualificandum in relation to *b*, i.e. the qualifier. Similarly the *b* is also the qualifier in relation to the cognition and also in relation to the qualificandum, namely, *a*. Thus *a* and *b* are qualificandum and qualifier respectively only in relation to both the cognition and the relation *R* obtaining between them. We have already explained the Navya-Nyāya technique of explaining this correlation obtaining between two terms of a relation which makes them correlatives. Thus cognition and object are correlatives. In Western philosophy there is a similar distinction drawn between the subject and

the object on the one hand, and the subject and the predicate on the other. The distinction between the subject and the predicate is a distinction within the object as distinct from the subject, i.e. the knower. In Navya-Nyāya, however, the direct relation is not between the knower (cogniser) and the known (cognised) but there is a direct relation between the knowledge (cognition) and the object. By the term *viṣayin,* Navya-Nyāya understands knowledge (cognition) whereas in *Advaita Vedānta,* the term stands for the subject, i.e. the knower. This distinction between the knower and knowledge is ultimately obliterated in Advaita Vedānta because, according to Advaita Vedānta, the knower is nothing but knowledge. In Navya-Nyāya, however, a radical distinction is made between the knower which has the knowledge and the knowledge which belongs to the knower. On this section we shall be concerned merely with the relation of the knowledge to the object and also the inter-relation or the correlation of the two elements within the object.

We explain the Navya-Nyāya theory by an example. Suppose we know that Daśaratha is the father of Rāma, then Daśaratha is the qualificandum in relation to this cognition as well as in relation to the qualifier, namely, Rāma. To say that Daśaratha is the qualificandum of the cognition is to say that Daśaratha possesses the property of being the qualificandum as determined by the cognition, i.e. the property of being the qualificandum which is resident in Daśaratha is determined by the cognition, Daśaratha is the father of Rāma. So also Rāma is the qualifier of the cognition, i.e. Rāma possesses the property of being a qualifier which is determined by the cognition. In order to describe the cognition completely Navya-Nyāya uses the second order technical language in this way. The cognition that Daśaratha is the father of Rāma is described as the cognition which determines the property of being the qualificandum resident in Daśaratha which in its turn is determined by the property of being the qualifier resident in Rāma. This description again is not complete because we have not included in it any description of the modes under which the terms Daśaratha and Rāma have been cognised. Thus a further description of the cognition will be thus: the cognition having a property of the qualificandum limited by the limiting property of being Daśaratha and determined by the property

of being the qualifier limited by the property of being Rāma. However, there is an alternative way of describing the same cognition because if the property of being the qualifier resident in Rāma determines the property of qualificandum resident in Daśaratha, so also we can have, conversely, the property of being the qualifier resident in Rāma determining the property of the qualificandum resident in Daśaratha. It is more usual to start with the property of being the qualifier which is resident in the qualifier and is limited by the mode under which the qualifier is cognised in the particular cognition and then come to the property of the qualificandum resident in the qualificandum as being determined by the property of the qualifier. The point here is that Daśaratha can be the qualificandum of many different cognitions, and therefore, the property of being the qualificandum resident in Daśaratha will not be one but many. So we shall have to specifically determine that this property of qualificandum resident in Daśaratha is determined by the property of the qualifier resident in Rāma. This way makes it clear that Daśaratha is the qualificandum of the cognition only in relation to Rāma and not in a different cognition, say, that Daśaratha is the husband of Kauśalyā. Thus the concept of being correlatives explained in Navya-Nyāya terminology by the concept of the determiner and the determined is necessary merely to show that the subject of a particular cognition is a subject in relation to or relative to a particular predicate.

These specifications of the qualificandum as a qualificandum only as relative to a particular qualifier enable the Navya-Nyāya philosophers to distinguish between various forms of cognition which cannot be otherwise distinguished. For example, how are you to distinguish between a relational cognition of the form *a-R-b* and what is known as a conjunctive cognition of the form *a* and *b*? According to Navya-Nyāya the conjunctive cognition having two objects (*samuhālambana*) is radically different from a relational cognition of the form *a-R-b*. Now when we cognise for example, a jar and a piece of cloth and when we cognise that a jar is on a piece of cloth we have two radically different types of congnition. In the one case there are two different qualificanda namely the jar and the piece of cloth but when we have this conjunctive cognition, our cognition is relational, so the jar is the qualificandum of jarness, i.e. the mode under which the jar is

cognised. The property of being a qualificandum resident in the jar is determined by the property of being a qualifier resident in jarness. So also with the piece of cloth. Thus according to Navya-Nyāya, here, in this cognition of the conjunctive variety we have two qualificanda relative to two different qualifiers namely jarness and the property being a piece of cloth, i.e. clothness. But when we know the jar on the piece of cloth our cognition is of the only one qualifier with respect to which the qualificandum is the chief qualificandum. Thus we have the jar as the qualificandum both of jarness and the piece of cloth. Yet the jarness, because it is not referred to by any word, is the limitor of the property of being the qualificandum resident in the jar, but this property of being a qualificandum resident in the jar is determined by the property of being a qualifier resident in the piece of cloth, i.e. the jar is the qualificandum in relation to the piece of cloth and the jarness and the clothness are limitors of the two properties resident in the jar and the piece of cloth.

We may explain the difference between this Navya-Nyāya theory of relational cognition and the modern Western analysis of propositions. In the expression 'blue jar' according to modern Western logic we know an adjective qualifying a noun. Still this grammatical relation of qualification is to be analysed in terms of a conjunction. The expression 'blue jar' has to be analysed as 'x is blue. x is a jar'. This shows that all adjectives are usually to be analysed by the truth-functional connective and according to Navya-Nyāya this is a completely wrong analysis. For a conjunctive cognition and a relational cognition are entirely different in nature. In a conjunctive cognition there must be two independent qualificanda with respect to two independent qualifiers whereas in every relational cognition there must be one general qualificandum with respect to one chief qualifier. Thus cognitions of both blue and a jar is radically different from the cognition of a blue jar.

We shall now explain what exactly is the difference between a qualified cognition, i.e. a relational cognition and a conjunctive cognition. When we have a relational cognition of the form *a-R-b* we say that we have a cognition of *a* as qualified by *b*, in other words, the qualificandum of a cognition is cognised as qualified by the qualifier and the qualification is the relation R. Now when

we have a cognition of *a* as qualified by *b* we have a different type of cognition from the cognition of both *a* and *b*. This difference can be explained by simply saying that when we have a cognition of both *a and b*, *a* and *b* are not related at all by any relation whatsoever. Whereas when we have a cognition of *a* as qualified by *b* we necessarily have a cognition of a relation between *a* and *b*. There is, however, a school of philosophers even in the Navya-Nyāya tradition led by Upādhyāya, who would like to assimilate a conjunctive cognition to a qualified cognition. We have already seen that the prevalent tendency among Western logicians is to assimilate qualified cognition into a conjunction. Here we have the opposite tendency of assimilating a conjunctive cognition into a qualified cognition. The reason for this is this: when we consider negations of object of a qualified cognition and compare it with the negation of the object of a conjunctive cognition we find that the negations come out true in exactly the same circumstances. Suppose we have a qualified cognition of *a* as qualified by *b* and then we form the negation of this object of qualified cognition, namely, the negation of *a* as qualified by *b*. Now this cognition comes out true in three cases and fails in one case; for example, if we want to know the cognition of a negation of a blue jar then this cognition comes out true in the following three cases:

(i) If there is no jar at all, but there is a blue thing
(ii) If the jar is there but there is no blue thing
(iii) There is neither jar nor any blue thing.

These are exactly the same conditions under which the conjunctive cognition *a* and *b* will come out false and the negation of *a and b* will come out true, namely :

(i) Where there is no *a*, but *b* is present
(ii) Where there is no *b*, but *a* is present
(iii) Where there is neither *a* nor *b*.

Thus we find that the negation of *a qualified as b* and the negation of *both a and b* are truth-functionally identical. Still the contention of Upādhyāya that both *a and b* can be regarded as either *a as qualified by b* or *as b qualified by a* is not acceptable to Raghunātha and the majority of Navya-Nyāya philosophers. The reason for this has been stated by Raghunātha in the following way:

We can have a conjunction of two entirely unrelated things like a horse and a cow where cowness and horseness are mutually exclusive properties having no common locus. In the case of a qualified cognition of a blue jar, for example it is absolutely necessary that the qualifier and the qualificandum should have a common locus, i.e. a common term which serves as the locus of both. Thus in the case of a blue jar the thing jar has blue colour and also the property of jarness. Now we may compare here the case where there is a conjunction of the blue colour and the property jarness in the jar. Yet this is more than a mere conjunction because the blue colour being present in the locus where jarness also is present, they become co-present in the same locus but in the case of the conjunctive cognitions of both a cow and a horse the properties of cowness and horseness cannot be present in the same locus because the properties are mutually exclusive. The point which Raghunātha wants to make is that when we use the form both *a and b* we do not thereby mean that *a* and *b* are related to each other, whereas when we cognise *a* in the form *a* as *qualified by b* then it is implied there is a qualifying-relation, namely, the qualification *R* holding between *a* and *b*. This is the main difference between the conjunctive and the qualified cognition.

Now in a qualified cognition we have the cognition of *a* as qualified by *b*, i.e. of a relation *R* as holding between *a* and *b*. We have already stated that in such a case *a* becomes a qualificandum of the cognition in relation to, or relative to, *b*. It is important to note here that the three terms when expressed in language *a, R, b,* will not make the object of a relational cognition. For a relational cognition it is absolutely necessary that *a* and *b* be related by *R*; for example, in the case of a blue jar, when we have relational cognition of a jar as qualified by the qualifier blue we have also the cognition of the relation of inherence, because the blue colour inheres in the jar and thereby the jar becomes a blue jar. Now if we have an expression *blue colour, inherence, jar* we do not have a qualified cognition but only a conjunctive cognition of three items instead of a relational cognition of two items related by a relation. This difference becomes clear if we remember that according to Navya-Nyāya a relation can never be expressed in a word but has always to be understood

from the order of the words denoting the terms of the relation. If we have a word expressing the relation, it will then be converted into a term and will not be also to function as a relation. This is because what is relation in the complex object depends upon that element which is characteristically related to its cognition, if we mention it by a word it ceases to have that as a relation. Hence we have a list of three items instead of cognition of two terms related by a certain relation.

We may note here a fundamental point of difference between a common Western theory of a sentence as an assertion and the Navya-Nyāya theory of a relational cognition of a complex object. In Western philosophy it is often stated that a distinction between a term and a sentence, between a name and a sentence, between a concept and a judgement is to be found in a judgement having a truth claim which is connected with the act of assertion. So also it is asserted that a sentence differs from a name in that although the name denotes or applies to one or more objects a sentence does not denote what it means but a sentence can only be assertive. The assertive element in a sentence has been very clearly brought forward by Frege in his theory of assertion. Still we find that the assertive element according to Frege is not to be found in anything within the sentence but it is to be connected by a metalinguistic sign of assertion attached to the sentences as a whole. The sentence as a whole asserts and the assertive element cannot be attached to or attributed to any single element within the sentence like the finite verb etc. But according to Navya-Nyāya there is absolutely no difference so far as the cognition is concerned between the cognition of a complex object and a cognition of an object expressed by a sentence. As we shall see later on, according to Navya-Nyāya a sentence produces the cognition of only a related whole which is a compound object and never of that which is asserted. The assertive element is only a psychological element of belief. According to Navya-Nyāya it has got nothing to do with the structure of the object cognised in a cognition. The rejection or denial of a proposition is not a psychological act but is a matter of the content which is an element in the object of the cognition. According to Western logicians, a proposition is said to be that which remains constant in the midst of changing propositional attitude like assuming,

believing, doubting, asserting, etc. According to Navya-Nyāya, these states are psychologically different and this psychological difference should not have anything to do with the structure of the object cognised, but as a matter of fact the Navya-Nyāya philosophers distinguish between the various objects which become objects of doubt, denial and affirmation. We shall discuss the nature of the difference of these states of cognitions with reference to the structure of the object cognised as explained in Navya-Nyāya.

THE NATURE OF DOUBT

We now explain the nature of doubt with reference to the nature of the object cognised. Doubt is different from belief psychologically because in belief there is a feeling of certainty where as in doubt there is no such feeling of certainty. Yet we shall not discuss this psychological difference between doubt and belief but shall consider the distinction of the objective structure of doubt and belief.

A doubt is usually expressed in language in the form of A is either B or not B, or A is either B or C. In Nyāya this 'either or' is usually a sentential connective; it connects not two words but two sentences expressed in words, although in Sanskrit often a declined word is itself a sentence. The classical example of doubt is 'either a man or a post', which means 'this is either a man or a post' which will be expounded into 'either this is a man or this is a post'. When the object is a relational whole, we cognise *a-R-b*, where *a* is the qualificandum, *b* is the qualifier so that in the complex object there is one qualificandum relative to one qualifier. But in the case of doubt the complex object cognised is much more complex than the simple example of a belief given above. In doubt the object is one which has one qualificandum but two qualifiers with respect to one qualificandum and the two qualifiers are such that they are incompatible with each other so that they cannot be true of the qualificandum simultaneously. This leads to state of vacillation in the mind so that no state of belief or assertion is achieved. Thus in a doubt the object is structurally and formally different from the object of a belief. There is, however, one more point to be noted here : in the case of a doubt there is ascription of a common property to the qualificandum

and this common property is further specified into two conflicting qualifiers. Thus when we have a doubt the object of cognition is different structurally from the object of cognition when there is assertion or belief.

We shall note here a further peculiarity of the Nyāya theory. According to Nyāya, only a perceptual cognition can be doubtful; there cannot be any hesitation, vacillation or indecision in the case of either inference or verbal knowledge. This is the commonly accepted theory although according to some, like the author Ratnakīrti who hold that even in an inference the conclusion can be doubtful. But according to the majority of Navya-Nyāya philosophers such possibility is ruled out because the conclusion follows necessarily from the premises. And this necessity prevents a doubt about whether a conclusion follows or does not follow from the given premises. So also in the case of cognising the meaning of a sentence, there cannot be any doubtful cognition of its meaning. Either we understand the meaning of the sentence, or, we do not; there is no via-media between these two alternatives. So according to Navya-Nyāya philosophers only perceptual cognition is where we may be undecided about the nature of the object, that is the qualificandum.

We have already said that in doubt the object is of the form *a* is either *b* or *c*. In this form, there is one qualificandum which has two qualifiers *b* and *c* but which are incompatible in the sense that they cannot be true of the same thing at the same time. Hence the mental state is a state of indecision, a state of vacillation and therefore there is no definite assertion of either *b* or of *c*.

There is a different type of cognition which is technically called two qualifiers in one. This is of the form *a* has both *b and* c. Here in this cognition in the object there is one qualificandum and two qualifiers which are equally important. The third form of cognition is technically called one qualifier for two qualificanda. It is of the form *a* and *b* have *c*. In this form of cognition the object is a complex whole, there are two qualificanda which are equally important, namely, *a* and *b*, and both of them have only one qualifier, namely, *c*. This type of cognition is des-

cribed in the technical language of Navya-Nyāya in the following way :

It is a cognition in which the property of being the qualificandum resident in *a* and *b* is determined by the property of being the qualifier resident in *c*. That is, the property of the being the qualifier determines here the property of being the qualificandum which is resident in two objects namely, *a* and *b*. Thus we have really three different forms of the simpler form of relational cognition in which there is only one qualification. These three are the following :

First of all there is the simple assertion of *a* as *b*-possessing. In the second form there is lack of assertion and indecision as in the case of doubt where the object is one qualificandum characterised by two qualifiers which are incompatible. The next form is the form of a cognition in which two qualifiers are predicated of one qualificandum. The third form is again another form of cognition where two qualificanda have one qualifier predicated of them. But in all these cases there is only one relation of prediction.

Now we distinguish between the simpler form of rational cognition and a higher order of qualification. In a simple cognition there is only one relation obtaining between the qualificandum and the qualifier whereas in a cognition of higher order qualification there is a qualified qualification in the sense that the chief qualificandum has a qualifier which is itself a complex whole containing a qualificandum and a qualifier. The example, here, is of the cognition of a man with a red hat which really means a man with a hat which is red. Now in this cognition the man is the ultimate qualificandum with respect to the qualifier the red hat. But this qualifier itself is again a complex whole where there is a qualification relation of which the hat is the qualificandum and the red colour is the qualifier. This type of cognition is called doubly qualified cognition because there are two qualifying relations involved in this. One is the relation between the hat and the red colour which belongs to it by the relation of inherence and the second is the qualifying relation which holds between the man and the red hat, namely, the relation of contact, of which the man is the first term and the red hat is the second term.

Navya-Nyāya distinguishes between these two types of cognition of the first order and second order qualification by showing what is necessarily presuppsoed in them. In the relational cognition of the simple type we have necessarily to presuppose a cognition of the qualifier without which the cognition is impossible. Thus in the perceiving an object as a jar the cognition of the universal jarness has to be actively present in the consciousness of the perceiving subject. When a cognition of some other qualifier, namely, the property of being earthen is present before the mind the person will perceive the same object not as a jar but as an earthen thing. Thus the cognition of the thing is determined by the object which is actually cognised when the act of cognition takes place so that that becomes the qualifier in the resulting relational cognition. In the terminology of Navya-Nyāya this is described by saying that a cognition of the qualifier is causally necessary for the production of the relational cognition. This cognition of the qualifier need not be a belief but may be just an assumption without involving any belief at all. The point is that before we can perceive a thing as a jar the cognition of a jar, that is, anything which possesses jarness jarness must be there in the mind. This cognition need not amount to a belief or a full-fledged knowledge. It should be present to consciousness. In the cognition of double qualification where there is a higher order qualification involving a qualified qualifier, the Navya-Nyāya philosophers hold that in such cognitions what is necessary to presuppose is a cognition of the second order qualifier. Thus when I know a man with a hat we must have a cognition of hatness. Unless we know what hatness is, we cannot know a man with a hat. This shows that the cognition of a hat is itself a relational cognition of which the hat is the qualificandum and hatness is the qualifier. For this relational cognition, what is absolutely presupposed is cognition of hatness. In Navya-Nyāya terminology hatness is the limitor of the property of being the qualifier resident in hat. This limitor of qualifierness is the qualifier of a qualifier. Thus the causal factors involved in the simple form of relational cognition and the cognition involving higher order qualification are different.

GLOSSARY

ādheya: superstratum.
adhikaraṇa: substratum.
anugama: showing that something is common to all relevant cases.
anumāna: inference.
anumiti: inferential cognition, cognition of conclusion.
anuvyavasāya: secondary (introspective) cognition.
anuyogin: predecessor (the first term of a relation).
anyatara: alternation; inclusive disjunction.
āśraya: locus.
atiprasaṅga: over-extension; too-wideness of a defining mark.
avacchedaka: limitor.
avacchinna: limited.
bādha: contradiction.
dharma: property, character.
dharmin: the characterized, (property-) possessor.
gaurava: heaviness.
guṇa: quality.
hetu: probans.
nirūpaka: determiner.
nirūpita: determined.
nirvikalpaka-jñāna: cognition without mode.
pakṣa: locus of an inference.
parāmarśa: consideration.
prakāra: mode.
pratiyogin: (i) successor (the second term of a relation);
(ii) counter-positive of a negation.
śābda-bodha: cognition of a sentence-meaning.
śakti: power; power of a word to refer to an object; meaning.
sādhya: probandum.
samānādhikaraṇa: co-present; present in the same locus.
samuhālambana-jñāna: conjunctive cognition.
sapakṣa: a locus where the probandum is known to be present.
savikalpaka-jñāna: cognition with mode.
upanāyaka: recollector; cause of associational cognition.

upanītabhāna: associational cognition.
vaiśiṣṭya: qualification; relation.
vidheya: predicate.
vipakṣa: a negative instance; a locus where the probandum is known to be absent.
viśeṣaṇa: qualifier.
viśeṣya: qualificandum.
viśiṣṭa-jñāna: qualified cognition; qualificative cognition.
viśiṣṭa-vaiśiṣṭya-jñāna: cognition of qualified qualification; secondarily qualified cognition.
vyādhikaraṇa: contra-located.
vyāpti: pervasion.

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